

FCC SAR Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : XIAOMI
MODEL NAME : A201XM
FCC ID : 2AFZZ1212UG
STANDARD : FCC 47 CFR Part 2 (2.1093)

We, Sporton International Inc. (Shenzhen), would like to declare that the tested sample has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.



Approved by: Si Zhang

Sporton International Inc. (Shenzhen)

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People's Republic of China**



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1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, A201XM**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.70	0.45	0.29	1.56
		GSM1900	0.67	0.59	0.39	
	WCDMA	WCDMA V	0.74	0.53	0.29	
		WCDMA IV	0.87	0.88	0.65	
		WCDMA II	0.69	0.95	0.78	
	LTE	Band 12	0.76	0.33	0.24	
		Band 17	0.75	0.34	0.23	
		Band 13	0.69	0.41	0.25	
		Band 5	0.83	0.45	0.36	
		Band 4	1.02	0.76	0.54	
		Band 2	0.65	1.09	0.45	
		Band 7	1.07	0.64	0.61	
		Band 38	0.88	0.57	0.37	
		Band 41	0.87	0.46	0.28	
		Band 42	0.97	1.03	0.99	
	5G NR	n77	1.06	0.84	0.73	
n78		1.07	0.83	1.04		
DTS	WLAN	2.4GHz WLAN	1.03	0.24	0.25	1.56
NII		5GHz WLAN	1.04	0.28	0.42	1.56
DSS	Bluetooth	2.4GHz Bluetooth	0.83	0.32	0.10	1.47
Highest 10g SAR Summary						
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)			Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	WCDMA	WCDMA IV	2.58			3.71
		WCDMA II	2.10			
	LTE	Band 4	2.45			
		Band 2	2.30			
		Band 7	1.33			
		Band 42	2.32			
	5G NR	n77	2.43			
n78		2.23				
NII	WLAN	5GHz WLAN	2.25			3.71
Date of Testing:			2022/6/26 ~ 2022/7/11			

Note: This is a variant report for A201XM, the different between them please refer to the A201XM_Operational Description of Product Equality Declaration which is exhibit separately. Based on the similarity between two models, only the LTE Band 2/41/42 and 5GNR n78 perform full testing, and the worst cases from original test report (Sporton Report Number FA253108) were verified for the differences.



Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.



2. Administration Data

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR05-SZ	CN1256	421272

Applicant	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Phone
Brand Name	XIAOMI
Model Name	A201XM
FCC ID	2AFZZ1212UG
IMEI Code	866088060001607
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM, 256QAM(Downlink Only) 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC:ASK
HW Version	P2
SW Version	MIUI 13
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark:	
1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation. 2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications. 3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz	



- WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 33.
 5. This device has NFC operations, the NFC antenna is integrated into the device for this model, therefore, all SAR test were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the antenna can be found in the operational description. According to FCC KDB publication 447498 D01v06, transmitters are consider to be operating simultaneously when there is overlapping transmission, with the exception of transmission during network hand-offs with maximum hand-off duration less than 30 seconds.
 6. This device has Single SIM card slot + eSIM. For Single SIM card slot + eSIM mobile supports Dual SIM Dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). We chose Single SIM card mobile to perform all tests.
 7. There are two samples. The sample 1 is 8+256GB capacity, and the sample 2 is 8+128GB capacity. According to the differences, we choose sample 1 to perform full test.
 8. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (Default Power: full power, DSI 1: receiver on reduced power for head; DSI 5: hotspot on power; DSI 3: P-sensor on for handheld; DSI 4: receiver off/P-sensor off).
 9. For WLAN/BT when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot, body-worn and extremity.
 10. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
 11. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
 12. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.
 13. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
 14. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
 15. For 5G NR EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
 16. The device support DBS (Dual Band Simultaneous) function, when the device 2.4GHz and 5GHz transmit at the same time the module will limit different output power for simultaneous transmission compliance.
 17. This device supports 5G NR FR1 bands as following table, including NSA mode and SA mode.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n78	TDD	30	20, 30, 40, 50, 60, 80, 90, 100
SA	n77	TDD	30	20, 30, 40, 60, 80, 100
	n78	TDD	30	20, 30, 40, 50, 60, 80, 90, 100



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	2AFZZ1212UG																																																														
Equipment Name	Mobile Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz																																																														
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R15, Cat13																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors/receiver detect mechanism/hotspot, head/body-worn/ hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band and inter-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 4 carriers in the downlink and 2 carriers in the uplink.																																																														



Transmission (H, M, L) channel numbers and frequencies in each LTE band																
LTE Band 2																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860				
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880				
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900				
LTE Band 4																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720				
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5				
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745				
LTE Band 5																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844				
LTE Band 7																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	21350	2560				
LTE Band 12																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711				
LTE Band 13																
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782		23230		782		23230		782	
M	23230		782		23230		782		23230		782		23230		782	
H	23255		784.5		23230		782		23230		782		23230		782	
LTE Band 17																
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23755		706.5		23780		709		23780		709		23780		709	
M	23790		710		23790		710		23790		710		23790		710	
H	23825		713.5		23800		711		23800		711		23800		711	



LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460
M	42590	3500	42590	3500	42590	3500	42590	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540



4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	The detail please refers to section 4.1 5GNR FR1 bands table.
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n78	LTE B41

<3700 MHz ~ 3980 MHz>

NR Band 77												
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)								
L	647334	3710.01	647668	3715.02	648000	3720	648668	3730.02	649334	3740.01	650000	3750
M	656000	3840	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840
H	664666	3969.99	664332	3964.98	664000	3960	663332	3949.98	662666	3939.99	662000	3930

NR Band 78																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)												
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	650666	3759.99	650332	3754.98		

<3450 MHz ~ 3550 MHz>

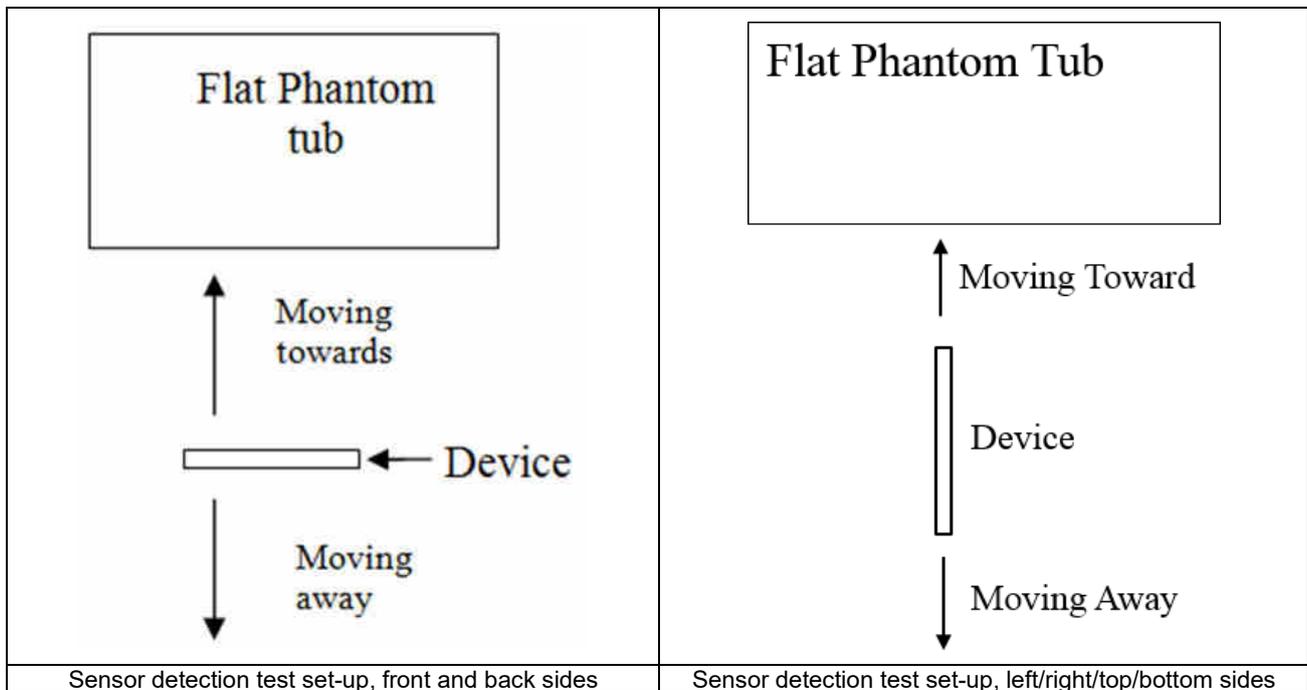
NR Band 77												
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)								
L	630668	3460.02	631000	3465	631334	3470.01	632000	3480	632668	3490.02		
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636000	3540	635666	3534.99	635332	3529.98	634666	3519.99	634000	3510		

NR Band 78																
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)												
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632668	3490.02	633000	3495		
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634000	3510	633666	3504.99		

5. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.
2. Proximity sensor triggering distance testing was performed according and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3900MHz) and lowest (1750MHz) frequency was used for proximity sensor triggering testing.
3. Capacitive proximity sensor placed coincident with antenna elements at the top/bottom end of the phone are utilized to determine when the device comes in proximity of the user's body or finger or hand at the front or back or bottom or left or right or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
4. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or top or right or left side of the device use a detection threshold distance. When front/back/right/left/top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below. The verification test and more details please refer to sensor operation description.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.





<P-Sensor>

<Sensor on for Ant0/2>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Bottom Side		Right Side	
	Moving towards	Moving away						
Minimum	16	16	16	16	16	16	16	16

<Sensor on for Ant1/3/4/5/7>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Top Side		Left Side	
	Moving towards	Moving away						
Minimum	6	6	6	6	6	6	6	6

6. RF Exposure Limits

6.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

7. Specific Absorption Rate (SAR)

7.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\text{SAR} = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

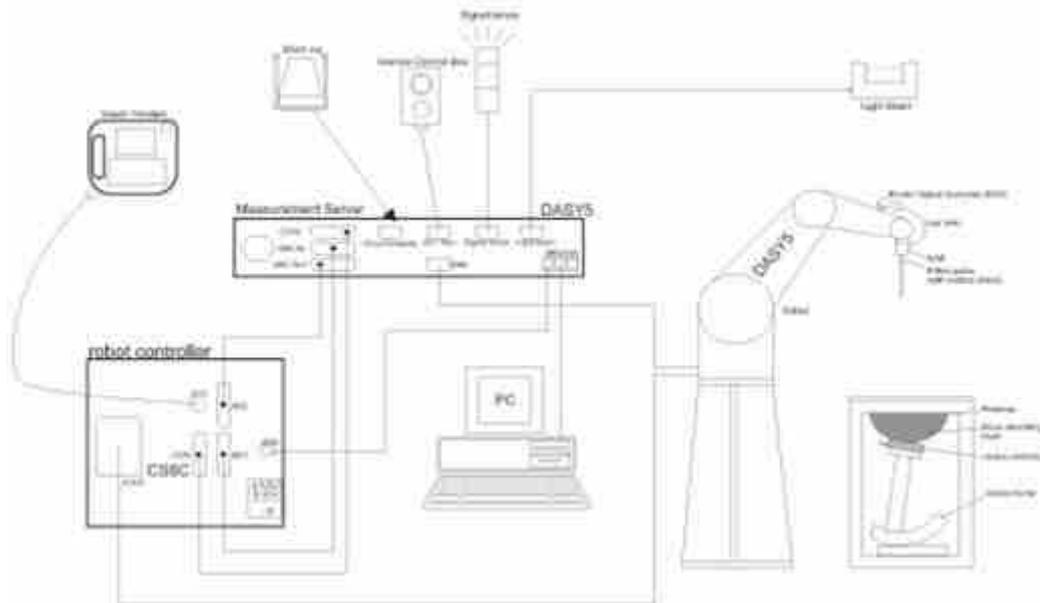
SAR is expressed in units of Watts per kilogram (W/kg)

$$\text{SAR} = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

8. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

8.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Photo of DAE

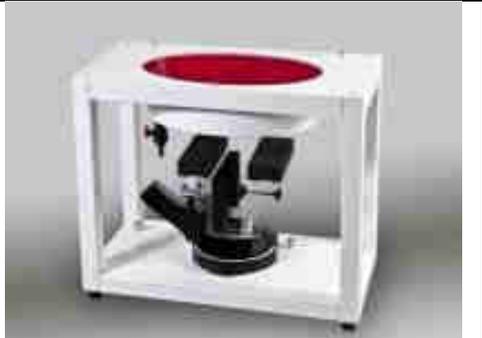
8.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

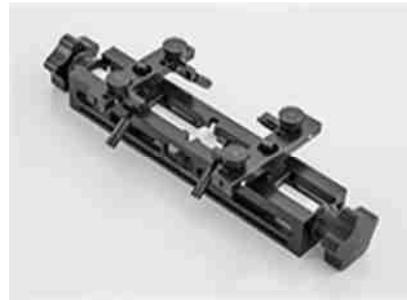
8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

9.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

9.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASy measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.



10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 14, 2022
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 16, 2022
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 19, 2021	Oct. 18, 2022
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 19, 2022
SPEAG	2450MHz System Validation Kit	D2450V2	924	Sep. 02, 2020	Sep. 01, 2023
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 20, 2021	Dec. 19, 2022
SPEAG	3500MHz System Validation Kit	D3500V2	1076	May 09, 2022	May 08, 2023
SPEAG	3700MHz System Validation Kit	D3700V2	1037	May 09, 2022	May 08, 2023
SPEAG	3900MHz System Validation Kit	D3900V2	1022	Jul. 11, 2019	Jul. 06, 2022
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 12, 2022
SPEAG	Data Acquisition Electronics	DAE4	1437	Oct. 26, 2021	Oct. 25, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Apr. 11, 2022	Apr. 10, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	7346	Mar. 30, 2022	Mar. 29, 2023
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201563813	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Radio communication analyzer	MT8821C	6272416863	Apr. 06, 2022	Apr. 05, 2023
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 14, 2021	Jul. 13, 2022
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 25, 2021	Oct. 24, 2022
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Jan. 24, 2022	Jan. 23, 2023
Agilent	Signal Generator	N5181A	MY50145381	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Sensor	MA2411B	1306099	Sep. 29, 2021	Sep. 28, 2022
Anritsu	Power Meter	ML2495A	1349001	Sep. 29, 2021	Sep. 28, 2022
Anritsu	Power Sensor	MA2411B	1542004	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Meter	ML2495A	1339473	Dec. 28, 2021	Dec. 27, 2022
R&S	Power Sensor	NRP50S	101254	Apr. 07, 2022	Apr. 06, 2023
R&S	Power Sensor	NRP8S	109228	Apr. 07, 2022	Apr. 06, 2023
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 28, 2021	Dec. 27, 2022
R&S	Spectrum Analyzer	FSP7	100818	Jul. 14, 2021	Jul. 13, 2022
TES	Hygrometer	1310	200505600	Jul. 17, 2021	Jul. 16, 2022
Anymetre	Thermo-Hygrometer	JR593	2020062101	Jul. 17, 2021	Jul. 16, 2022
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	

Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.2.



Fig 11.1 Photo of Liquid Height for Head SAR

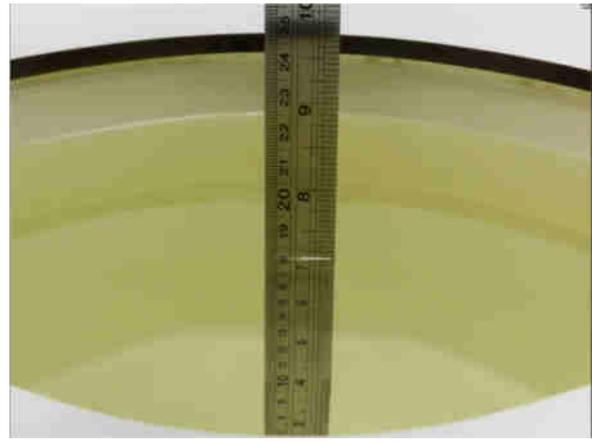


Fig 11.2 Photo of Liquid Height for Body SAR



11.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ε _r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.4	0.881	40.783	0.89	41.90	-1.01	-2.67	±5	2022/7/3
835	Head	22.5	0.902	40.749	0.90	41.50	0.22	-1.81	±5	2022/7/4
1750	Head	22.6	1.362	41.340	1.37	40.10	-0.58	3.09	±5	2022/6/26
1750	Head	22.6	1.378	40.204	1.37	40.10	0.58	0.26	±5	2022/7/6
1900	Head	22.8	1.451	39.099	1.40	40.00	3.64	-2.25	±5	2022/6/27
1900	Head	22.8	1.449	39.097	1.40	40.00	3.50	-2.26	±5	2022/7/5
2450	Head	22.3	1.820	39.753	1.80	39.20	1.11	1.41	±5	2022/6/27
2450	Head	22.7	1.809	38.451	1.80	39.20	0.50	-1.91	±5	2022/7/7
2600	Head	22.5	1.894	40.240	1.96	39.00	-3.37	3.18	±5	2022/6/29
2600	Head	22.3	2.053	38.007	1.96	39.00	4.74	-2.55	±5	2022/7/8
3500	Head	22.7	3.025	36.334	2.91	37.90	3.95	-4.13	±5	2022/6/30
3500	Head	22.5	3.046	36.875	2.91	37.90	4.67	-2.70	±5	2022/7/9
3700	Head	22.9	3.039	36.561	3.12	37.70	-2.60	-3.02	±5	2022/6/30
3700	Head	22.9	3.042	36.377	3.12	37.70	-2.50	-3.51	±5	2022/7/9
3900	Head	22.4	3.334	37.958	3.33	37.51	0.12	1.19	±5	2022/7/1
3900	Head	22.7	3.203	37.958	3.33	37.51	-3.81	1.19	±5	2022/7/5
5250	Head	22.8	4.757	36.931	4.71	35.95	1.00	2.73	±5	2022/7/10
5600	Head	22.4	5.188	36.135	5.07	35.50	2.33	1.79	±5	2022/7/10
5750	Head	22.7	5.374	35.896	5.22	35.35	2.95	1.54	±5	2022/7/11

11.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2022/7/3	750	Head	250	1099	7641	1437	2.200	8.54	8.8	3.04
2022/7/4	835	Head	250	4d162	7641	1437	2.440	9.64	9.76	1.24
2022/6/26	1750	Head	250	1137	7641	1437	9.230	36.50	36.92	1.15
2022/7/6	1750	Head	250	1137	7641	1437	9.070	36.50	36.28	-0.60
2022/6/27	1900	Head	250	5d182	7641	1437	10.200	39.60	40.8	3.03
2022/7/5	1900	Head	250	5d182	7641	1437	10.100	39.60	40.4	2.02
2022/6/27	2450	Head	250	924	7641	1437	12.000	51.40	48	-6.61
2022/7/7	2450	Head	250	924	7641	1437	11.900	51.40	47.6	-7.39
2022/6/29	2600	Head	250	1070	7641	1437	13.200	56.20	52.8	-6.05
2022/7/8	2600	Head	250	1070	7641	1437	12.900	56.20	51.6	-8.19
2022/6/30	3500	Head	100	1076	7641	1437	7.120	66.20	71.2	7.55
2022/7/9	3500	Head	100	1076	7641	1437	7.030	66.20	70.3	6.19
2022/6/30	3700	Head	100	1037	7641	1437	6.890	66.70	68.9	3.30
2022/7/9	3700	Head	100	1037	7641	1437	7.150	66.70	71.5	7.20
2022/7/1	3900	Head	100	1022	7346	1437	7.420	70.50	74.2	5.25
2022/7/5	3900	Head	100	1022	7346	1437	6.880	70.50	68.8	-2.41
2022/7/10	5250	Head	100	1341	7641	1437	8.240	80.70	82.4	2.11
2022/7/10	5600	Head	100	1341	7641	1437	8.410	84.50	84.1	-0.47
2022/7/11	5750	Head	100	1341	7641	1437	7.630	80.60	76.3	-5.33

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2022/7/3	750	Head	250	1099	7641	1437	1.470	5.65	5.88	4.07
2022/7/4	835	Head	250	4d162	7641	1437	1.600	6.26	6.4	2.24
2022/6/26	1750	Head	250	1137	7641	1437	4.630	19.20	18.52	-3.54
2022/7/6	1750	Head	250	1137	7641	1437	4.820	19.20	19.28	0.42
2022/6/27	1900	Head	250	5d182	7641	1437	4.760	20.20	19.04	-5.74
2022/7/5	1900	Head	250	5d182	7641	1437	5.070	20.20	20.28	0.40
2022/6/27	2450	Head	250	924	7641	1437	5.600	24.00	22.4	-6.67
2022/7/7	2450	Head	250	924	7641	1437	5.680	24.00	22.72	-5.33
2022/6/29	2600	Head	250	1070	7641	1437	5.790	24.60	23.16	-5.85
2022/7/8	2600	Head	250	1070	7641	1437	5.580	24.60	22.32	-9.27
2022/6/30	3500	Head	100	1076	7641	1437	2.420	25.50	24.2	-5.10
2022/7/9	3500	Head	100	1076	7641	1437	2.560	25.50	25.6	0.39
2022/6/30	3700	Head	100	1037	7641	1437	2.350	24.60	23.5	-4.47
2022/7/9	3700	Head	100	1037	7641	1437	2.490	24.60	24.9	1.22
2022/7/1	3900	Head	100	1022	7346	1437	2.530	24.60	25.3	2.85
2022/7/5	3900	Head	100	1022	7346	1437	2.330	24.60	23.3	-5.28
2022/7/10	5250	Head	100	1341	7641	1437	2.260	23.10	22.6	-2.16
2022/7/10	5600	Head	100	1341	7641	1437	2.280	24.00	22.8	-5.00
2022/7/11	5750	Head	100	1341	7641	1437	2.110	22.70	21.1	-7.05

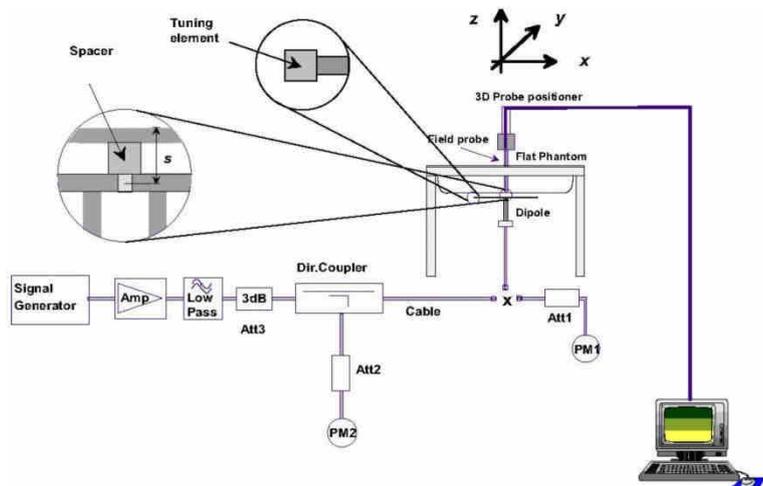


Fig 10.3.1 System Performance Check Setup



Fig 10.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

Figure 12.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 12.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 12.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

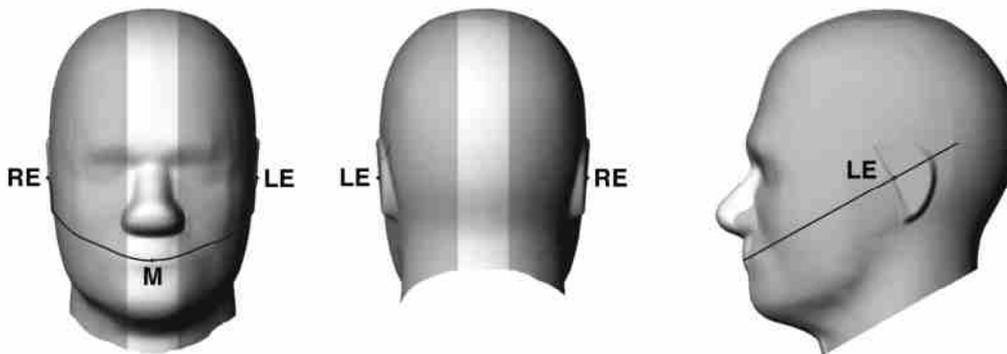


Fig 12.1.1 Front, back, and side views of SAM twin phantom

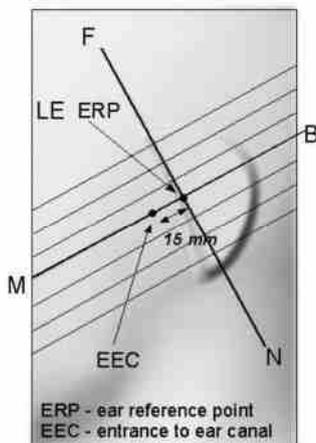


Fig 12.1.2 Close-up side view of phantom showing the ear region.

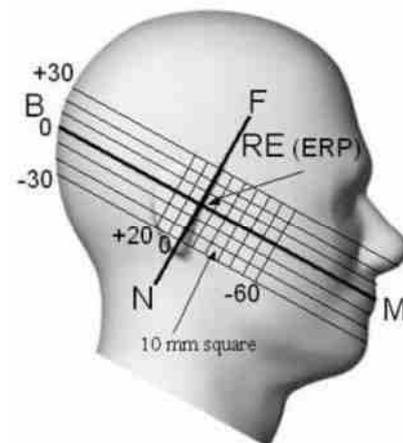


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 12.2.1 and Figure 12.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

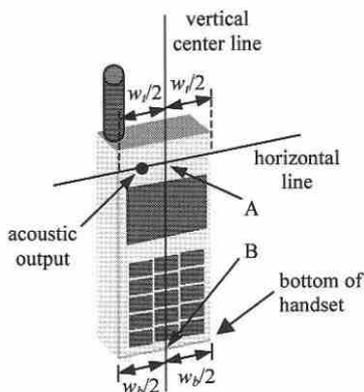


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

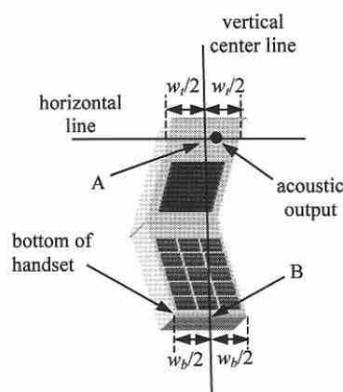


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

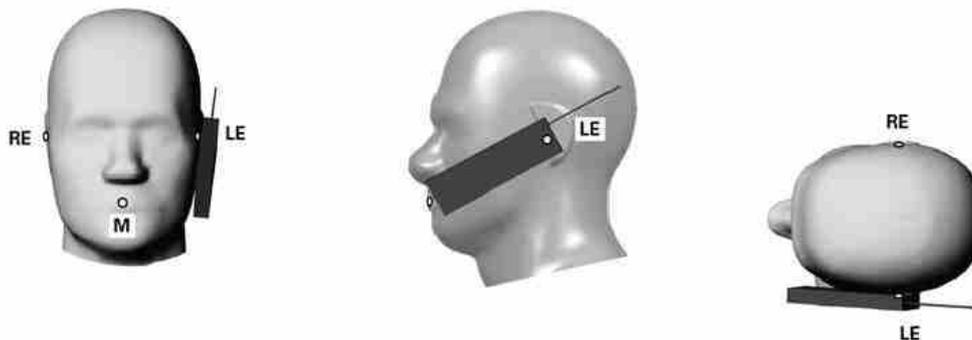


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 12.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

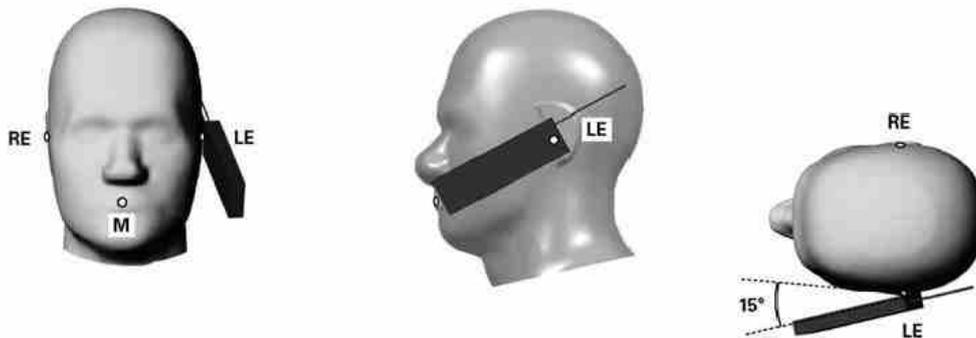


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

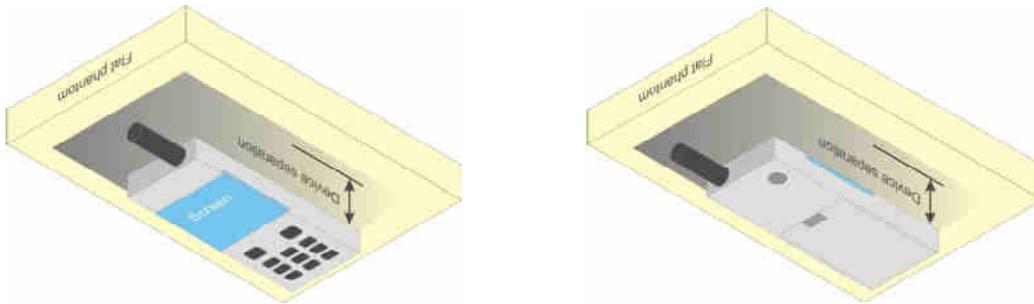


Fig 12.4 Body Worn Position



12.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

12.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

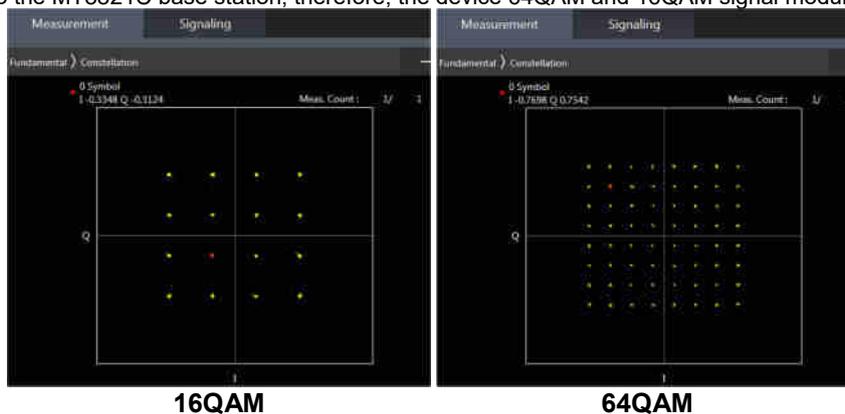
13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. According to 2017 May TCB workshop, for 16QAM and 64QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

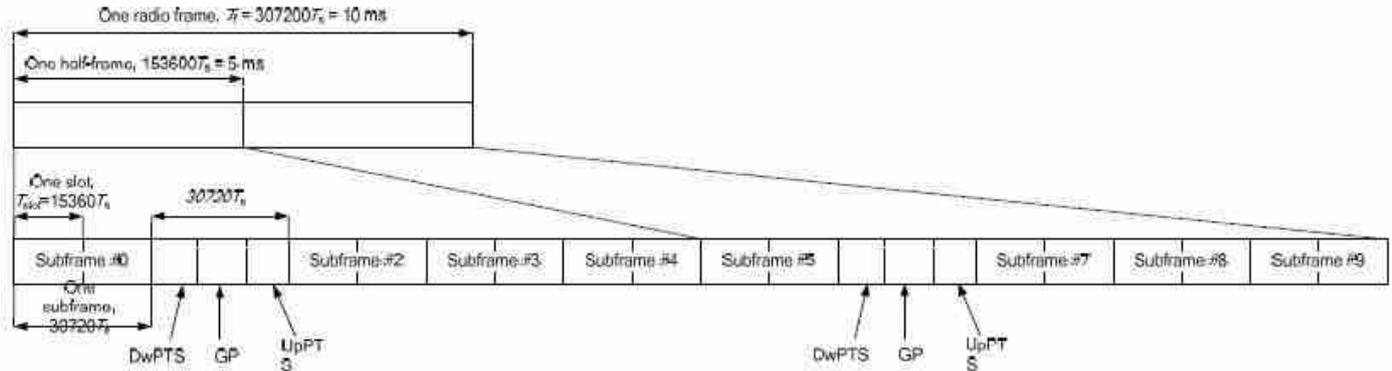


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	2192 · Ts	2560 · Ts
1	19760 · Ts			20480 · Ts		
2	21952 · Ts			23040 · Ts		
3	24144 · Ts			25600 · Ts		
4	26336 · Ts	4384 · Ts	5120 · Ts	7680 · Ts	4384 · Ts	5120 · Ts
5	6592 · Ts			20480 · Ts		
6	19760 · Ts			23040 · Ts		
7	21952 · Ts			12800 · Ts		
8	24144 · Ts	-	-	-	-	-
9	13168 · Ts	-	-	-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

- i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.167)/5 = 63.3\%$
- iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.143)/5 = 62.9\%$
- v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.



<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation				4CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	CA_41A-42A	41A-42A		1	CA_41A-42C	41A-42C		1	CA_41C-42C	41C-42C	
2	CA_41C	41C		2	CA_42A-41C	42A-41C					
3	CA_42C	42C									

LTE Carrier Aggregation Conducted Power (Downlink)

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink four carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.
- vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1|BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Bands 41/42 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

Per FCC Guidance, SAR for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25 dB higher than the maximum output power with downlink 4x4 MIMO inactive. When carrier aggregation is applicable, power measurements were performed with the downlink carrier aggregation and 4x4 DL MIMO active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

4X4 MIMO	WWAN Band
	LTE Band: B41/B42



LTE Carrier Aggregation Conducted Power (Uplink)

<Intra-band>

2CC Uplink Carrier Aggregation		
Number	Combination	Ant No.
1	CA_41C	Ant 0/1/2/3
2	CA_42C	Ant 6/4/5/7

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B41/B42 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. The device supports uplink carrier aggregation with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According 2017 Nov. TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. Additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

**5G NR Output Power (Unit: dBm)****General Note:**

1. 5G NR n77, n78 supports SA operation.
2. 5G NR n78 supports NSA.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s PI/2 BPSK and the reported SAR for the DFT-s PI/2 BPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
 - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
 - c. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
 - d. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
 - e. PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
 - f. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
 - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
5. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
6. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
7. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.
8. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
9. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
10. For 5G NR EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.

<3GPP 38.101 MPR for EN-DC>

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

ENDC List	LTE Ant	NR Ant
DC_41A_n78A	Ant0/1/2/3	Ant4/5/6/7



<WLAN Conducted Power>

General Note:

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. 802.11ax full tone and partial tone supported for WLAN2.4GHz/WLAN5GHz, after verification for the partial tone power level is far less than full tone power level, so we chose full tone power to be measured in this report.



14. Antenna Location

The detailed antenna location information can refer to SAR Test Setup Photos.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (Default Power: full power, DSI 1: receiver on reduced power for head; DSI 5: hotspot on power; DSI 3: P-sensor on for handheld; DSI 4: receiver off/P-sensor off).
5. For WLAN/BT when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot, body-worn and extremity.
6. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
7. For 5G NR EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
8. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
9. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.
10. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
11. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
12. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold,
 - a. WCDMA B2/B4, LTE B2/B4/B7/B42, 5G NR n77/n78, and WLAN5.8G are required to be tested.
 - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
13. For some WWAN bands, full power level higher than receiver off reduced power level, so front/back full power SAR can represent Body-worn receiver off SAR conservatively.
14. The device support DBS (Dual Band Simultaneous) function, when the device 2.4GHz and 5GHz transmit at the same time the module will limit different output power for simultaneous transmission compliance.



15. LTE B41 and 5GNR n78 support different PAs for some antennas, Whether it is the maximum power of Main PA is higher than and very close to the other PA, for RF exposure, we choose the main PA and other PA to perform full SAR tested to ensure the RF exposure is compliance.
16. For distance SAR and non-distance SAR, always chose higher SAR to do co-located analysis.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is \leq ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is \leq ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is \leq 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are \leq 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is $>$ 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is $>$ not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure.
 - c. PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
 - d. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not $\frac{1}{2}$ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK /16QAM /64QAM/256QAM SAR testing are not required.
 - e. Smaller bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. 802.11ax supports full tone size and partial tone size, after verification for the partial tone size mode power level will not higher than full tone size power level, so chose full tone power to be measured in this report.
7. SISO and MIMO all supported by WLAN2.4GHz/WLAN5GHz, for SISO mode power is less than per chain power of MIMO mode. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power, so only chose MIMO power to perform SAR testing.
8. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of two antennas respectively to calculate sum of the power for MIMO mode.
9. Only chose MIMO power to perform SAR testing.



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
01	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	23095	707.5	23.62	25.00	1.374	-	-	-0.09	0.554	0.761
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	23095	707.5	24.98	25.50	1.127	-	-	0.05	0.077	0.087
02	LTE Band 17	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	23790	710	23.74	25.00	1.337	-	-	-0.03	0.558	0.746
	LTE Band 17	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	23790	710	24.97	25.50	1.130	-	-	0.06	0.084	0.095
03	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	23230	782	24.24	25.50	1.337	-	-	-0.02	0.515	0.688
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	23230	782	25.03	25.50	1.114	-	-	0.09	0.153	0.170
835MHz																				
04	GSM850	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 1	DSI 1	128	824.2	25.11	27.00	1.545	-	-	-0.09	0.453	0.700
	GSM850	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 0	DSI 1	189	836.4	26.72	28.00	1.343	-	-	0.01	0.151	0.203
05	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI 1	4132	826.4	22.39	23.50	1.291	-	-	-0.07	0.576	0.744
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 1	4182	836.4	24.34	25.50	1.306	-	-	0.09	0.198	0.259
06	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSI 1	20525	836.5	21.71	23.50	1.510	-	-	-0.01	0.551	0.832
	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	20525	836.5	24.47	25.50	1.268	-	-	0.05	0.187	0.237
1750MHz																				
07	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI 1	1413	1732.6	16.74	17.50	1.191	-	-	0.03	0.727	0.866
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSI 1	1413	1732.6	24.39	25.00	1.151	-	-	0.09	0.191	0.220
08	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	20175	1732.5	20.18	21.50	1.355	-	-	-0.06	0.753	1.020
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 1	20175	1732.5	24.63	25.50	1.222	-	-	-0.03	0.163	0.199
1900MHz																				
09	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Right Cheek	0mm	Ant 1	DSI 1	661	1880	18.23	19.00	1.194	-	-	-0.04	0.557	0.665
	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Left Cheek	0mm	Ant 2	DSI 1	661	1880	24.69	25.00	1.074	-	-	0.01	0.063	0.068
10	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSI 1	9400	1880	14.74	15.50	1.191	-	-	-0.02	0.582	0.693
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DSI 1	9400	1880	24.67	25.00	1.079	-	-	0.08	0.158	0.170
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	18900	1880	19.11	20.00	1.227	-	-	-0.1	0.498	0.611
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 1	18900	1880	19.11	20.00	1.227	-	-	-0.06	0.103	0.126
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI 1	18900	1880	19.11	20.00	1.227	-	-	-0.01	0.222	0.272
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI 1	18900	1880	19.11	20.00	1.227	-	-	-0.04	0.067	0.082
11	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	18900	1880	19.06	20.00	1.242	-	-	-0.04	0.523	0.649
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI 1	18900	1880	19.06	20.00	1.242	-	-	0.06	0.109	0.135
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI 1	18900	1880	19.06	20.00	1.242	-	-	-0.16	0.229	0.284
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI 1	18900	1880	19.06	20.00	1.242	-	-	0.04	0.071	0.088
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 1	18900	1880	23.92	24.50	1.143	-	-	-0.11	0.092	0.105
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSI 1	18900	1880	23.92	24.50	1.143	-	-	0.14	0.089	0.102
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	18900	1880	23.92	24.50	1.143	-	-	-0.04	0.168	0.192
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSI 1	18900	1880	23.92	24.50	1.143	-	-	-0.09	0.085	0.097
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSI 1	18900	1880	22.96	23.50	1.132	-	-	-0.07	0.072	0.082
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSI 1	18900	1880	22.96	23.50	1.132	-	-	-0.01	0.068	0.077
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSI 1	18900	1880	22.96	23.50	1.132	-	-	0.04	0.125	0.142
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSI 1	18900	1880	22.96	23.50	1.132	-	-	-0.08	0.075	0.085
2600MHz																				
12	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	21100	2535	20.00	21.20	1.318	-	-	-0.08	0.812	1.070
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	21100	2535	24.73	25.50	1.194	-	-	0.09	0.395	0.472
13	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	38000	2595	21.64	22.70	1.276	62.9	1.006	-0.09	0.688	0.883
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	38000	2595	24.45	25.50	1.274	62.9	1.006	0.01	0.240	0.307
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.11	0.194	0.260
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	40620+40422	2593+2573.2	16.21	17.50	1.346	62.9	1.006	0.05	0.175	0.237
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	0.12	0.189	0.253
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.09	0.101	0.135
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	0.15	0.109	0.146
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.05	0.187	0.251



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	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.03	0.183	0.246
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.04	0.096	0.129
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.02	0.105	0.141
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.09	0.045	0.057
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	40620+ 40422	2593+ 2573.2	20.95	22.00	1.274	62.9	1.006	-0.14	0.043	0.055
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.05	0.035	0.044
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	0.09	0.038	0.048
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	0.11	0.028	0.035
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.13	0.037	0.047
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.1	0.028	0.036
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	-0.04	0.030	0.038
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.03	0.022	0.028
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	40620	2593	19.86	21.50	1.459	62.9	1.006	0.16	0.500	0.734
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 1	40620	2593	19.86	21.50	1.459	62.9	1.006	0.12	0.105	0.154
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI 1	40620	2593	19.86	21.50	1.459	62.9	1.006	0.03	0.250	0.367
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI 1	40620	2593	19.86	21.50	1.459	62.9	1.006	0.05	0.062	0.091
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	39750	2506	19.64	21.50	1.535	62.9	1.006	-0.13	0.402	0.621
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	40185	2549.5	19.63	21.50	1.538	62.9	1.006	0.06	0.425	0.658
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	41055	2636.5	19.75	21.50	1.496	62.9	1.006	0.09	0.542	0.816
14	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	41490	2680	19.72	21.50	1.507	62.9	1.006	-0.07	0.571	0.865
	LTE Band 41C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	41490+ 41292	2680+ 2660.2	19.68	21.50	1.521	62.9	1.006	-0.12	0.526	0.805
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.09	0.489	0.723
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI 1	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.12	0.103	0.152
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI 1	40620	2593	19.83	21.50	1.469	62.9	1.006	0.16	0.244	0.361
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI 1	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.07	0.061	0.090
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	39750	2506	19.68	21.50	1.521	62.9	1.006	-0.15	0.393	0.601
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	40185	2549.5	19.69	21.50	1.517	62.9	1.006	-0.11	0.415	0.633
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	41055	2636.5	19.67	21.50	1.524	62.9	1.006	0.11	0.530	0.813
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	41490	2680	19.65	21.50	1.531	62.9	1.006	-0.09	0.558	0.859
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 3	DSI 1	40620	2593	19.79	21.50	1.483	62.9	1.006	0.13	0.484	0.722
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.05	0.101	0.122
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.08	0.045	0.054
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.07	0.182	0.219
	LTE Band 41C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	40620+ 40422	2593+ 2573.2	23.68	24.50	1.208	62.9	1.006	0.05	0.174	0.211
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	0.12	0.061	0.073
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.14	0.081	0.098
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.03	0.038	0.046
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.13	0.165	0.200
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.09	0.047	0.057
3500-3900MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	42590	3500	21.77	23.50	1.489	62.9	1.006	0.15	0.643	0.963
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	42590	3500	21.77	23.50	1.489	62.9	1.006	-0.06	0.208	0.312
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	42590	3500	21.77	23.50	1.489	62.9	1.006	0.16	0.597	0.894
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	42590	3500	21.77	23.50	1.489	62.9	1.006	-0.16	0.127	0.190
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	42190	3460	21.76	23.50	1.493	62.9	1.006	-0.07	0.603	0.906
15	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	42990	3540	21.73	23.50	1.503	62.9	1.006	-0.03	0.640	0.968
	LTE Band 42C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	42990+ 42792	3540+ 3520.2	21.56	23.50	1.563	62.9	1.006	-0.02	0.597	0.939
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	42190	3460	21.76	23.50	1.493	62.9	1.006	0.02	0.523	0.785
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	42990	3540	21.73	23.50	1.503	62.9	1.006	0.01	0.548	0.829
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	42590	3500	21.75	23.50	1.496	62.9	1.006	-0.12	0.631	0.950
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	42590	3500	21.75	23.50	1.496	62.9	1.006	-0.04	0.202	0.304
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	42590	3500	21.75	23.50	1.496	62.9	1.006	0.16	0.582	0.876
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI 1	42590	3500	21.75	23.50	1.496	62.9	1.006	0.07	0.123	0.185
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	42190	3460	21.73	23.50	1.503	62.9	1.006	-0.08	0.579	0.876
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	42990	3540	21.74	23.50	1.500	62.9	1.006	-0.11	0.623	0.940

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	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	42190	3460	21.73	23.50	1.503	62.9	1.006	-0.16	0.516	0.780
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	42990	3540	21.74	23.50	1.500	62.9	1.006	-0.06	0.537	0.810
	LTE Band 42	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 4	DSI 1	42590	3500	21.72	23.50	1.507	62.9	1.006	0.02	0.623	0.944
	LTE Band 42	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 4	DSI 1	42590	3500	21.72	23.50	1.507	62.9	1.006	-0.1	0.576	0.873
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSI 1	42590	3500	21.49	22.20	1.178	62.9	1.006	-0.09	0.424	0.502
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSI 1	42590	3500	21.49	22.20	1.178	62.9	1.006	-0.13	0.428	0.507
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	21.49	22.20	1.178	62.9	1.006	-0.14	0.581	0.688
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	21.49	22.20	1.178	62.9	1.006	-0.08	0.713	0.845
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42190	3460	21.17	22.20	1.268	62.9	1.006	0.08	0.573	0.731
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42990	3540	21.44	22.20	1.191	62.9	1.006	0.06	0.611	0.732
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42190	3460	21.17	22.20	1.268	62.9	1.006	-0.03	0.724	0.923
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42990	3540	21.44	22.20	1.191	62.9	1.006	-0.09	0.741	0.888
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSI 1	42590	3500	21.47	22.20	1.183	62.9	1.006	-0.04	0.429	0.511
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSI 1	42590	3500	21.47	22.20	1.183	62.9	1.006	0.12	0.439	0.522
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	21.47	22.20	1.183	62.9	1.006	-0.15	0.602	0.716
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	21.47	22.20	1.183	62.9	1.006	0.12	0.758	0.902
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42190	3460	21.38	22.20	1.208	62.9	1.006	0.14	0.602	0.731
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42990	3540	21.45	22.20	1.189	62.9	1.006	-0.06	0.628	0.751
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42190	3460	21.38	22.20	1.208	62.9	1.006	-0.15	0.766	0.931
	LTE Band 42C	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42190+42388	3460+3479	21.15	22.20	1.274	62.9	1.006	0.12	0.709	0.908
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42990	3540	21.45	22.20	1.189	62.9	1.006	-0.12	0.746	0.892
	LTE Band 42	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	21.45	22.20	1.189	62.9	1.006	0.03	0.612	0.732
	LTE Band 42	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	21.45	22.20	1.189	62.9	1.006	-0.11	0.747	0.893
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI 1	42590	3500	19.61	20.00	1.094	62.9	1.006	-0.04	0.184	0.202
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 6	DSI 1	42590	3500	19.61	20.00	1.094	62.9	1.006	-0.15	0.133	0.146
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI 1	42590	3500	19.61	20.00	1.094	62.9	1.006	0.06	0.553	0.609
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 6	DSI 1	42590	3500	19.61	20.00	1.094	62.9	1.006	-0.12	0.315	0.347
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI 1	42190	3460	19.50	20.00	1.122	62.9	1.006	-0.04	0.517	0.584
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI 1	42990	3540	19.52	20.00	1.117	62.9	1.006	0.09	0.598	0.672
	LTE Band 42C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI 1	42990+42792	3540+3520.2	19.44	20.00	1.138	62.9	1.006	0.08	0.576	0.659
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 6	DSI 1	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.07	0.178	0.197
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 6	DSI 1	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.15	0.117	0.129
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 6	DSI 1	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.02	0.549	0.607
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 6	DSI 1	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.14	0.295	0.326
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 6	DSI 1	42190	3460	19.52	20.00	1.117	62.9	1.006	-0.11	0.511	0.574
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 6	DSI 1	42990	3540	19.54	20.00	1.112	62.9	1.006	0.06	0.580	0.649
	LTE Band 42	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 6	DSI 1	42590	3500	19.57	20.00	1.104	62.9	1.006	0.02	0.548	0.609
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI 1	42590	3500	23.72	25.00	1.343	62.9	1.006	-0.1	0.477	0.644
	LTE Band 42C	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI 1	42590+42788	3500+3519.8	23.64	25.00	1.368	62.9	1.006	0.05	0.396	0.545
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 7	DSI 1	42590	3500	23.72	25.00	1.343	62.9	1.006	-0.15	0.143	0.193
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 7	DSI 1	42590	3500	23.72	25.00	1.343	62.9	1.006	0.06	0.221	0.299
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 7	DSI 1	42590	3500	23.72	25.00	1.343	62.9	1.006	0.14	0.054	0.073
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI 1	42190	3460	23.62	25.00	1.374	62.9	1.006	-0.04	0.437	0.604
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 7	DSI 1	42990	3540	23.51	25.00	1.409	62.9	1.006	-0.03	0.451	0.639
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 7	DSI 1	42590	3500	22.84	24.00	1.306	62.9	1.006	0.03	0.377	0.495
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 7	DSI 1	42590	3500	22.84	24.00	1.306	62.9	1.006	-0.01	0.122	0.160
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 7	DSI 1	42590	3500	22.84	24.00	1.306	62.9	1.006	0.04	0.171	0.225
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 7	DSI 1	42590	3500	22.84	24.00	1.306	62.9	1.006	-0.14	0.041	0.054
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 7	DSI 1	42190	3460	22.73	24.00	1.340	62.9	1.006	0.03	0.367	0.495
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 7	DSI 1	42990	3540	22.70	24.00	1.349	62.9	1.006	-0.06	0.384	0.521
	LTE Band 42	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 7	DSI 1	42590	3500	22.69	24.00	1.352	62.9	1.006	0.16	0.383	0.521
	N77	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.87	21.00	1.297	-	-	0.02	0.764	0.991
	N77	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.82	18.20	1.374	-	-	-0.07	0.471	0.647
16	N77	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	656000	3840	15.19	16.50	1.352	-	-	-0.08	0.784	1.060
	N77	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	656000	3840	18.55	20.00	1.396	-	-	0.13	0.426	0.595
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.25	21.00	1.496	-	-	-0.03	0.622	0.931

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Report No. : FA253108-01

	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	633334	3500.01	19.25	21.00	1.496	-	-	-0.12	0.143	0.214
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.25	21.00	1.496	-	-	0.16	0.459	0.687
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	633334	3500.01	19.25	21.00	1.496	-	-	0.01	0.096	0.144
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.22	21.00	1.507	-	-	-0.04	0.676	1.018
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	633334	3500.01	19.22	21.00	1.507	-	-	0.16	0.163	0.246
	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.22	21.00	1.507	-	-	0.13	0.498	0.750
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	633334	3500.01	19.22	21.00	1.507	-	-	-0.02	0.108	0.163
	N78	100M	BPSK	270	0	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.20	21.00	1.514	-	-	0.07	0.652	0.987
	N78	100M	BPSK	270	0	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	633334	3500.01	19.20	21.00	1.514	-	-	0.01	0.473	0.716
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	650000	3750	19.40	21.00	1.445	-	-	-0.12	0.320	0.463
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	650000	3750	19.40	21.00	1.445	-	-	0.05	0.114	0.165
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	650000	3750	19.40	21.00	1.445	-	-	-0.14	0.312	0.451
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	650000	3750	19.40	21.00	1.445	-	-	0.02	0.080	0.116
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	650000	3750	19.36	21.00	1.459	-	-	0.08	0.292	0.426
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	650000	3750	19.36	21.00	1.459	-	-	0.03	0.095	0.139
	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	650000	3750	19.36	21.00	1.459	-	-	0.16	0.276	0.403
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	650000	3750	19.36	21.00	1.459	-	-	-0.04	0.057	0.083
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.65	17.70	1.274	-	-	-0.05	0.228	0.290
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.65	17.70	1.274	-	-	-0.02	0.259	0.330
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.65	17.70	1.274	-	-	0.12	0.319	0.406
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.65	17.70	1.274	-	-	0.14	0.429	0.546
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.55	17.70	1.303	-	-	0.08	0.246	0.321
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.55	17.70	1.303	-	-	0.01	0.273	0.356
	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.55	17.70	1.303	-	-	-0.01	0.330	0.430
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.55	17.70	1.303	-	-	0.05	0.458	0.597
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	650000	3750	16.60	17.70	1.288	-	-	0.1	0.184	0.237
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	650000	3750	16.60	17.70	1.288	-	-	-0.1	0.212	0.273
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	650000	3750	16.60	17.70	1.288	-	-	-0.08	0.295	0.380
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	650000	3750	16.60	17.70	1.288	-	-	-0.13	0.349	0.450
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	650000	3750	16.51	17.70	1.315	-	-	-0.14	0.195	0.256
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	650000	3750	16.51	17.70	1.315	-	-	-0.15	0.237	0.312
	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	650000	3750	16.51	17.70	1.315	-	-	0.14	0.316	0.416
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	650000	3750	16.51	17.70	1.315	-	-	-0.08	0.355	0.467
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	633334	3500.01	15.65	16.50	1.216	-	-	-0.01	0.105	0.128
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	633334	3500.01	15.65	16.50	1.216	-	-	-0.14	0.053	0.064
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	633334	3500.01	15.65	16.50	1.216	-	-	-0.1	0.285	0.347
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	633334	3500.01	15.65	16.50	1.216	-	-	-0.13	0.169	0.206
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	633334	3500.01	15.53	16.50	1.250	-	-	0.02	0.111	0.139
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	633334	3500.01	15.53	16.50	1.250	-	-	0.13	0.060	0.075
	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	633334	3500.01	15.53	16.50	1.250	-	-	-0.01	0.298	0.373
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	633334	3500.01	15.53	16.50	1.250	-	-	-0.07	0.172	0.215
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	650000	3750	15.65	16.50	1.216	-	-	-0.12	0.163	0.198
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	650000	3750	15.65	16.50	1.216	-	-	-0.01	0.125	0.152
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	15.65	16.50	1.216	-	-	0.12	0.811	0.986
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	650000	3750	15.65	16.50	1.216	-	-	-0.11	0.366	0.445
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245	-	-	-0.11	0.171	0.213
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245	-	-	0.06	0.130	0.162
17	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245	-	-	0.02	0.862	1.073
	N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245	-	-	0.1	0.391	0.487
	N78	100M	BPSK	270	0	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	15.41	16.50	1.285	-	-	-0.06	0.693	0.891
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	633334	3500.01	19.16	20.50	1.361	-	-	-0.01	0.257	0.350
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	633334	3500.01	19.16	20.50	1.361	-	-	-0.02	0.119	0.162
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	633334	3500.01	19.16	20.50	1.361	-	-	0.14	0.100	0.136
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	633334	3500.01	19.16	20.50	1.361	-	-	0.05	0.051	0.069
	N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	633334	3500.01	19.07	20.50	1.390	-	-	0.03	0.249	0.346
	N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	633334	3500.01	19.07	20.50	1.390	-	-	0.14	0.088	0.122



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N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	633334	3500.01	19.07	20.50	1.390	-	-	-0.1	0.085	0.118
N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	633334	3500.01	19.07	20.50	1.390	-	-	0.02	0.037	0.051
N78	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	650000	3750	19.11	20.50	1.377	-	-	-0.11	0.491	0.676
N78	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	650000	3750	19.11	20.50	1.377	-	-	0.15	0.176	0.242
N78	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	650000	3750	19.11	20.50	1.377	-	-	0.01	0.160	0.220
N78	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	650000	3750	19.11	20.50	1.377	-	-	0.13	0.085	0.117
N78	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	650000	3750	19.03	20.50	1.403	-	-	-0.11	0.552	0.774
N78	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	650000	3750	19.03	20.50	1.403	-	-	0.02	0.202	0.283
N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	650000	3750	19.03	20.50	1.403	-	-	0.08	0.171	0.240
N78	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	650000	3750	19.03	20.50	1.403	-	-	0.15	0.094	0.132
N78	100M	BPSK	270	0	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	650000	3750	18.80	20.50	1.479	-	-	0.01	0.511	0.756

EN-DC Main PA

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.11	0.194	0.260
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	0.12	0.189	0.253
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.09	0.101	0.135
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSI 1	40620	2593	16.26	17.50	1.330	62.9	1.006	0.15	0.109	0.146
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.05	0.187	0.251
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.03	0.183	0.246
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.04	0.096	0.129
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSI 1	40620	2593	16.24	17.50	1.337	62.9	1.006	0.02	0.105	0.141
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.09	0.045	0.057
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.05	0.035	0.044
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	0.09	0.038	0.048
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	40620	2593	21.01	22.00	1.256	62.9	1.006	0.11	0.028	0.035
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.13	0.037	0.047
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.1	0.028	0.036
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	-0.04	0.030	0.038
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	40620	2593	19.98	21.00	1.265	62.9	1.006	0.03	0.022	0.028
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 1	40620	2593	18.39	19.50	1.291	62.9	1.006	-0.12	0.386	0.501
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 1	40620	2593	18.39	19.50	1.291	62.9	1.006	0.11	0.074	0.096
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI 1	40620	2593	18.39	19.50	1.291	62.9	1.006	0.07	0.177	0.230
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI 1	40620	2593	18.39	19.50	1.291	62.9	1.006	-0.02	0.044	0.057
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI 1	40620	2593	18.35	19.50	1.303	62.9	1.006	-0.05	0.377	0.494
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI 1	40620	2593	18.35	19.50	1.303	62.9	1.006	-0.06	0.073	0.096
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI 1	40620	2593	18.35	19.50	1.303	62.9	1.006	0.08	0.173	0.227
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI 1	40620	2593	18.35	19.50	1.303	62.9	1.006	-0.1	0.043	0.056
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.05	0.101	0.122
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.08	0.045	0.054
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.07	0.182	0.219
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSI 1	40620	2593	23.72	24.50	1.197	62.9	1.006	0.12	0.061	0.073
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.14	0.081	0.098
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.03	0.038	0.046
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.13	0.165	0.200
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSI 1	40620	2593	22.70	23.50	1.202	62.9	1.006	0.09	0.047	0.057
3500-3900MHz																				
	N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	16.24	18.00	1.500	-	-	-0.16	0.312	0.468
	N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	633334	3500.01	16.24	18.00	1.500	-	-	0.12	0.072	0.108
	N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	633334	3500.01	16.24	18.00	1.500	-	-	-0.05	0.230	0.345
	N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	633334	3500.01	16.24	18.00	1.500	-	-	0.07	0.048	0.072
	N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	633334	3500.01	16.23	18.00	1.503	-	-	0.06	0.341	0.513
	N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	633334	3500.01	16.23	18.00	1.503	-	-	0.09	0.082	0.123
	N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	633334	3500.01	16.23	18.00	1.503	-	-	0.04	0.250	0.376

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FCC SAR Test Report

Report No. : FA253108-01

N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	633334	3500.01	16.23	18.00	1.503	-	-	-0.01	0.054	0.081
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	650000	3750	16.42	18.00	1.439	-	-	0.02	0.160	0.230
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	650000	3750	16.42	18.00	1.439	-	-	-0.02	0.057	0.082
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	650000	3750	16.42	18.00	1.439	-	-	-0.16	0.156	0.224
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	650000	3750	16.42	18.00	1.439	-	-	-0.09	0.040	0.058
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI 1	650000	3750	16.38	18.00	1.452	-	-	-0.1	0.146	0.212
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	DSI 1	650000	3750	16.38	18.00	1.452	-	-	0.14	0.048	0.070
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	DSI 1	650000	3750	16.38	18.00	1.452	-	-	-0.02	0.138	0.200
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	DSI 1	650000	3750	16.38	18.00	1.452	-	-	0.01	0.029	0.042
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.13	17.20	1.279	-	-	0.02	0.203	0.260
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.13	17.20	1.279	-	-	-0.07	0.231	0.296
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.13	17.20	1.279	-	-	0	0.284	0.363
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.13	17.20	1.279	-	-	0.09	0.382	0.489
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.06	17.20	1.300	-	-	-0.13	0.219	0.285
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.06	17.20	1.300	-	-	0.06	0.243	0.316
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	16.06	17.20	1.300	-	-	-0.13	0.294	0.382
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	16.06	17.20	1.300	-	-	0.05	0.408	0.530
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	650000	3750	16.12	17.20	1.282	-	-	-0.08	0.164	0.210
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	650000	3750	16.12	17.20	1.282	-	-	0.09	0.189	0.242
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	650000	3750	16.12	17.20	1.282	-	-	-0.02	0.263	0.337
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	650000	3750	16.12	17.20	1.282	-	-	0.05	0.311	0.399
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	650000	3750	16.03	17.20	1.309	-	-	0	0.174	0.228
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	650000	3750	16.03	17.20	1.309	-	-	-0.04	0.211	0.276
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	650000	3750	16.03	17.20	1.309	-	-	-0.12	0.271	0.355
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	650000	3750	16.03	17.20	1.309	-	-	0.16	0.333	0.436
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	633334	3500.01	12.66	13.50	1.213	-	-	0.14	0.053	0.064
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	633334	3500.01	12.66	13.50	1.213	-	-	0.07	0.027	0.033
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	633334	3500.01	12.66	13.50	1.213	-	-	0.03	0.143	0.174
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	633334	3500.01	12.66	13.50	1.213	-	-	0.13	0.085	0.103
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	633334	3500.01	12.55	13.50	1.245	-	-	0.02	0.056	0.070
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	633334	3500.01	12.55	13.50	1.245	-	-	0.08	0.030	0.037
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	633334	3500.01	12.55	13.50	1.245	-	-	0	0.149	0.185
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	633334	3500.01	12.55	13.50	1.245	-	-	0.14	0.089	0.111
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	650000	3750	12.67	13.50	1.211	-	-	0.09	0.082	0.099
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	650000	3750	12.67	13.50	1.211	-	-	0.13	0.063	0.076
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	12.67	13.50	1.211	-	-	-0.11	0.406	0.492
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	650000	3750	12.67	13.50	1.211	-	-	-0.02	0.183	0.222
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI 1	650000	3750	12.55	13.50	1.245	-	-	0.05	0.086	0.107
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI 1	650000	3750	12.55	13.50	1.245	-	-	0.05	0.065	0.081
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	12.55	13.50	1.245	-	-	0.13	0.426	0.530
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI 1	650000	3750	12.55	13.50	1.245	-	-	0.04	0.196	0.244
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	633334	3500.01	17.63	19.00	1.371	-	-	-0.11	0.182	0.250
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	633334	3500.01	17.63	19.00	1.371	-	-	0.15	0.084	0.115
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	633334	3500.01	17.63	19.00	1.371	-	-	-0.14	0.071	0.097
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	633334	3500.01	17.63	19.00	1.371	-	-	0.12	0.036	0.049
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	633334	3500.01	17.55	19.00	1.396	-	-	0.15	0.174	0.243
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	633334	3500.01	17.55	19.00	1.396	-	-	-0.05	0.062	0.087
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	633334	3500.01	17.55	19.00	1.396	-	-	-0.14	0.060	0.084
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	633334	3500.01	17.55	19.00	1.396	-	-	0.08	0.029	0.040
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	650000	3750	17.63	19.00	1.371	-	-	-0.03	0.348	0.477
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	650000	3750	17.63	19.00	1.371	-	-	-0.12	0.125	0.171
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	650000	3750	17.63	19.00	1.371	-	-	0.15	0.113	0.155
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	650000	3750	17.63	19.00	1.371	-	-	0.02	0.060	0.082
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant 7	DSI 1	650000	3750	17.53	19.00	1.403	-	-	0.09	0.376	0.527
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant 7	DSI 1	650000	3750	17.53	19.00	1.403	-	-	0.13	0.143	0.201
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 7	DSI 1	650000	3750	17.53	19.00	1.403	-	-	0.12	0.118	0.166



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N78_Main PA	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant 7	DSI 1	650000	3750	17.53	19.00	1.403	-	-	-0.04	0.067	0.094
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Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 16	Full	39	2441	16.36	18.00	1.459	77.1	1.297	0.09	0.383	0.725
18	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 18	Full	39	2441	16.3	18.00	1.479	76.14	1.313	-0.02	0.429	0.833
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 16+18	Standalone	6	2437	18.01	19.00	1.256	100	1.000	0.01	0.444	0.558
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 16+18	Standalone	6	2437	18.01	19.00	1.256	100	1.000	-0.15	0.218	0.274
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Standalone	6	2437	18.01	19.00	1.256	100	1.000	0.08	0.793	0.996
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 16+18	Standalone	6	2437	18.01	19.00	1.256	100	1.000	-0.15	0.596	0.749
19	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Standalone	11	2462	17.94	19.00	1.276	100	1.000	0.15	0.808	1.031
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Standalone	11	2462	17.94	19.00	1.276	100	1.000	0.04	0.787	1.005
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 16+18	Simultaneous	6	2437	12.03	13.00	1.250	100	1.000	-0.08	0.107	0.134
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 16+18	Simultaneous	6	2437	12.03	13.00	1.250	100	1.000	0.14	0.052	0.065
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Simultaneous	6	2437	12.03	13.00	1.250	100	1.000	-0.06	0.183	0.229
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 16+18	Simultaneous	6	2437	12.03	13.00	1.250	100	1.000	-0.07	0.143	0.179
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 16+18	DBS Reduced	6	2437	17.01	18.00	1.256	100	1.000	-0.1	0.353	0.443
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 16+18	DBS Reduced	6	2437	17.01	18.00	1.256	100	1.000	0.04	0.173	0.217
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	DBS Reduced	6	2437	17.01	18.00	1.256	100	1.000	0.15	0.630	0.791
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 16+18	DBS Reduced	6	2437	17.01	18.00	1.256	100	1.000	0.01	0.473	0.594
5000MHz																
20	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 17+18	Standalone	50	5250	16.79	18.50	1.483	99.3	1.007	0.03	0.658	0.982
21	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 17+18	Standalone	114	5570	17.91	19.00	1.285	99.3	1.007	0.08	0.802	1.038
22	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 17+18	Standalone	155	5775	15.73	17.50	1.503	99.12	1.009	0.05	0.523	0.793



15.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
23	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5	23095	707.5	23.62	25.00	1.374	-	-	-0.06	0.241	0.331
	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	23095	707.5	24.98	25.50	1.127	-	-	-0.15	0.253	0.285
24	LTE Band 17	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5	23790	710	23.74	25.00	1.337	-	-	0.03	0.251	0.335
	LTE Band 17	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	23790	710	24.97	25.50	1.130	-	-	-0.01	0.261	0.295
	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5	23230	782	24.24	25.50	1.337	-	-	-0.13	0.294	0.393
25	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	23230	782	25.03	25.50	1.114	-	-	-0.06	0.369	0.411
835MHz																				
	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 1	DSI 5	189	836.4	25.26	27.00	1.493	-	-	0.09	0.166	0.248
26	GSM850	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 0	DSI 5	189	836.4	26.72	28.00	1.343	-	-	-0.08	0.336	0.451
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI 5	4182	836.4	22.53	23.50	1.250	-	-	0.04	0.304	0.380
27	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 5	4182	836.4	24.34	25.50	1.306	-	-	-0.04	0.405	0.529
	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 1	DSI 5	20525	836.5	21.71	23.50	1.510	-	-	0.08	0.292	0.441
28	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	20525	836.5	24.47	25.50	1.268	-	-	-0.03	0.351	0.445
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	DSI 5	1413	1732.6	16.74	17.50	1.191	-	-	0.05	0.243	0.289
29	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI 5	1513	1752.6	21.84	22.5	1.164	-	-	0.01	0.755	0.879
	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI 5	20175	1732.5	20.18	21.50	1.355	-	-	0.08	0.430	0.583
30	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	20175	1732.5	22.08	23.00	1.236	-	-	0.03	0.618	0.764
1900MHz																				
	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Back	10mm	Ant 1	DSI 5	661	1880	18.23	19.00	1.194	-	-	0.09	0.254	0.303
31	GSM1900	-	-	-	-	GPRS(4 Tx slots)	Bottom Side	10mm	Ant 2	DSI 5	661	1880	24.69	25.00	1.074	-	-	0.04	0.548	0.589
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI 5	9400	1880	14.74	15.50	1.191	-	-	0.01	0.211	0.251
32	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 2	DSI 5	9400	1880	22.71	23.00	1.069	-	-	0.05	0.886	0.947
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI 5	18900	1880	19.11	20.00	1.227	-	-	0.07	0.121	0.149
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI 5	18900	1880	19.11	20.00	1.227	-	-	-0.1	0.168	0.206
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI 5	18900	1880	19.11	20.00	1.227	-	-	0.05	0.325	0.399
	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI 5	18900	1880	19.11	20.00	1.227	-	-	-0.09	0.032	0.039
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI 5	18900	1880	19.06	20.00	1.242	-	-	0.01	0.129	0.160
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI 5	18900	1880	19.06	20.00	1.242	-	-	-0.16	0.171	0.212
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI 5	18900	1880	19.06	20.00	1.242	-	-	-0.14	0.343	0.426
	LTE Band 2	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI 5	18900	1880	19.06	20.00	1.242	-	-	-0.06	0.035	0.043
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI 5	18900	1880	23.37	24.00	1.156	-	-	-0.07	0.533	0.616
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI 5	18900	1880	23.37	24.00	1.156	-	-	0.05	0.703	0.813
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI 5	18900	1880	23.37	24.00	1.156	-	-	0.08	0.202	0.234
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	18900	1880	23.37	24.00	1.156	-	-	-0.06	0.916	1.059
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	18700	1860	23.31	24.00	1.172	-	-	-0.05	0.783	0.918
33	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	19100	1900	23.30	24.00	1.175	-	-	-0.04	0.925	1.087
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI 5	18700	1860	23.31	24.00	1.172	-	-	-0.12	0.633	0.742
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI 5	19100	1900	23.30	24.00	1.175	-	-	-0.14	0.731	0.859
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI 5	18900	1880	22.98	23.50	1.127	-	-	0.15	0.479	0.540
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI 5	18900	1880	22.98	23.50	1.127	-	-	0.15	0.640	0.721
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI 5	18900	1880	22.98	23.50	1.127	-	-	-0.13	0.175	0.197
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI 5	18900	1880	22.98	23.50	1.127	-	-	-0.04	0.746	0.841
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI 5	18700	1860	22.80	23.50	1.175	-	-	0.15	0.718	0.844
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI 5	19100	1900	22.86	23.50	1.159	-	-	-0.1	0.818	0.948
	LTE Band 2	20M	QPSK	100	0	-	Back	10mm	Ant 2	DSI 5	18900	1880	22.87	23.50	1.156	-	-	-0.08	0.637	0.736
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	10mm	Ant 2	DSI 5	18900	1880	22.87	23.50	1.156	-	-	-0.05	0.745	0.861
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI 5	21100	2535	20.27	21.20	1.239	-	-	0.06	0.236	0.292
34	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	21100	2535	21.78	22.50	1.180	-	-	-0.18	0.544	0.642



	LTE Band 38	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI 5	38000	2595	21.64	22.70	1.276	62.9	1.006	0.08	0.229	0.294
35	LTE Band 38	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	38000	2595	23.49	24.50	1.262	62.9	1.006	-0.1	0.445	0.565
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.07	0.040	0.054
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.15	0.047	0.063
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.08	0.056	0.075
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.12	0.070	0.094
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.09	0.043	0.058
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.14	0.049	0.066
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	0.09	0.062	0.083
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	0.07	0.074	0.099
	LTE Band 41C	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5	40620+2593+40422	2593+2573.2	16.21	17.50	1.346	62.9	1.006	0.16	0.051	0.069
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.15	0.079	0.099
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.1	0.073	0.092
	LTE Band 41	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	0.08	0.061	0.077
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.04	0.094	0.118
	LTE Band 41C	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 5	40620+2593+40422	2593+2573.2	18.89	20.00	1.291	62.9	1.006	-0.07	0.085	0.110
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	-0.11	0.075	0.095
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	0.06	0.072	0.091
	LTE Band 41	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	0.1	0.054	0.068
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	-0.13	0.090	0.114
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	-0.01	0.131	0.192
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.02	0.105	0.154
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.02	0.140	0.205
	LTE Band 41C	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI 5	40620+2593+40422	2593+2573.2	19.83	21.50	1.469	62.9	1.006	-0.1	0.114	0.168
	LTE Band 41	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.08	0.022	0.032
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.15	0.128	0.189
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	0.12	0.100	0.148
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.06	0.138	0.204
	LTE Band 41	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	0.08	0.019	0.028
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	0.05	0.301	0.364
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	0.02	0.369	0.446
	LTE Band 41	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	-0.1	0.130	0.157
36	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	-0.06	0.382	0.462
	LTE Band 41C	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	40620+2593+40422	2593+2573.2	22.68	23.50	1.208	62.9	1.006	-0.03	0.361	0.439
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	0.13	0.294	0.356
	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	-0.01	0.363	0.440
	LTE Band 41	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	-0.04	0.131	0.159
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	0.15	0.375	0.455
3500-3900MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 5	42590	3500	21.30	23.00	1.479	62.9	1.006	0.13	0.135	0.201
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 5	42590	3500	21.30	23.00	1.479	62.9	1.006	0.1	0.181	0.269
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 5	42590	3500	21.30	23.00	1.479	62.9	1.006	-0.05	0.284	0.423
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 5	42590	3500	21.30	23.00	1.479	62.9	1.006	0.08	0.062	0.092
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 5	42590	3500	21.25	23.00	1.496	62.9	1.006	-0.16	0.141	0.212
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 5	42590	3500	21.25	23.00	1.496	62.9	1.006	-0.15	0.173	0.260
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 4	DSI 5	42590	3500	21.25	23.00	1.496	62.9	1.006	0.11	0.295	0.444
	LTE Band 42C	20M	QPSK	50	0	-	Left Side	10mm	Ant 4	DSI 5	42590+3500+42788	3500+3519.8	21.21	23.00	1.510	62.9	1.006	-0.11	0.281	0.427
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 4	DSI 5	42590	3500	21.25	23.00	1.496	62.9	1.006	-0.06	0.064	0.096
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 5	DSI 5	42590	3500	20.46	21.20	1.186	62.9	1.006	0.04	0.111	0.132
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 5	DSI 5	42590	3500	20.46	21.20	1.186	62.9	1.006	0.08	0.238	0.284
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	DSI 5	42590	3500	20.46	21.20	1.186	62.9	1.006	0.01	0.031	0.037
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	DSI 5	42590	3500	20.46	21.20	1.186	62.9	1.006	0.01	0.239	0.285
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 5	DSI 5	42590	3500	20.42	21.20	1.197	62.9	1.006	-0.13	0.116	0.140
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 5	DSI 5	42590	3500	20.42	21.20	1.197	62.9	1.006	-0.07	0.249	0.300
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 5	DSI 5	42590	3500	20.42	21.20	1.197	62.9	1.006	-0.08	0.035	0.042



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	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	DSI 5	42590	3500	20.42	21.20	1.197	62.9	1.006	-0.01	0.274	0.330
	LTE Band 42C	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	DSI 5	42590+42788	3500+3519.8	20.24	21.20	1.247	62.9	1.006	0.04	0.256	0.321
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 6	DSI 5	42590	3500	19.61	20.00	1.094	62.9	1.006	0.12	0.107	0.118
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 6	DSI 5	42590	3500	19.61	20.00	1.094	62.9	1.006	-0.01	0.111	0.122
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 6	DSI 5	42590	3500	19.61	20.00	1.094	62.9	1.006	0.16	0.231	0.254
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 6	DSI 5	42590	3500	19.61	20.00	1.094	62.9	1.006	0.12	0.070	0.077
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 6	DSI 5	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.14	0.124	0.137
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 6	DSI 5	42590	3500	19.59	20.00	1.099	62.9	1.006	0.12	0.115	0.127
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 6	DSI 5	42590	3500	19.59	20.00	1.099	62.9	1.006	-0.02	0.238	0.263
	LTE Band 42C	20M	QPSK	50	0	-	Right Side	10mm	Ant 6	DSI 5	42590+42788	3500+3519.8	19.55	20.00	1.109	62.9	1.006	-0.04	0.224	0.250
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 6	DSI 5	42590	3500	19.59	20.00	1.099	62.9	1.006	0.01	0.082	0.091
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 7	DSI 5	42590	3500	20.15	21.50	1.365	62.9	1.006	-0.07	0.059	0.081
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 7	DSI 5	42590	3500	20.15	21.50	1.365	62.9	1.006	0.06	0.668	0.917
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 7	DSI 5	42590	3500	20.15	21.50	1.365	62.9	1.006	-0.05	0.224	0.308
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 7	DSI 5	42590	3500	20.15	21.50	1.365	62.9	1.006	-0.12	0.029	0.040
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 7	DSI 5	42190	3460	20.08	21.50	1.387	62.9	1.006	0.15	0.687	0.958
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 7	DSI 5	42990	3540	20.03	21.50	1.403	62.9	1.006	-0.12	0.697	0.984
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 7	DSI 5	42590	3500	20.13	21.50	1.371	62.9	1.006	0.06	0.061	0.084
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 7	DSI 5	42590	3500	20.13	21.50	1.371	62.9	1.006	0.05	0.696	0.960
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 7	DSI 5	42590	3500	20.13	21.50	1.371	62.9	1.006	0.06	0.230	0.317
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 7	DSI 5	42590	3500	20.13	21.50	1.371	62.9	1.006	0.05	0.032	0.044
	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 7	DSI 5	42190	3460	20.11	21.50	1.377	62.9	1.006	-0.14	0.688	0.953
37	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 7	DSI 5	42990	3540	20.03	21.50	1.403	62.9	1.006	-0.11	0.726	1.025
	LTE Band 42C	20M	QPSK	50	0	-	Back	10mm	Ant 7	DSI 5	42990+42792	3540+3520.2	20.01	21.50	1.409	62.9	1.006	0.01	0.683	0.968
	LTE Band 42	20M	QPSK	100	0	-	Back	10mm	Ant 7	DSI 5	42590	3500	20.10	21.50	1.380	62.9	1.006	0.02	0.686	0.953
	N77	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 4	DSI 5	633334	3500.01	18.92	20.00	1.282	-	-	-0.04	0.235	0.301
	N77	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 5	633334	3500.01	16.82	18.20	1.374	-	-	0.01	0.190	0.261
	N77	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 6	DSI 5	656000	3840	15.19	16.50	1.352	-	-	0.09	0.380	0.514
38	N77	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 7	DSI 5	656000	3840	15.02	16.50	1.406	-	-	-0.07	0.599	0.842
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.04	0.120	0.180
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.13	0.164	0.245
	N78	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.1	0.229	0.343
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	0.15	0.020	0.030
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	-0.12	0.131	0.197
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.08	0.181	0.273
	N78	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.01	0.246	0.371
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.02	0.025	0.038
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	-0.12	0.083	0.120
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	0.16	0.120	0.173
	N78	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	-0.08	0.207	0.299
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	0.13	0.023	0.033
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	0.06	0.080	0.117
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	0.05	0.117	0.171
	N78	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	-0.07	0.204	0.298
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	-0.11	0.019	0.028
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	-0.03	0.076	0.097
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	-0.06	0.136	0.173
	N78	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	0.01	0.018	0.023
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	0.04	0.176	0.224
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	0.1	0.077	0.100
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.01	0.142	0.185
	N78	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.16	0.022	0.029
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.04	0.177	0.231
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.15	0.080	0.103
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.09	0.105	0.135
	N78	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.15	0.016	0.021

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FCC SAR Test Report

Report No. : FA253108-01

	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.02	0.143	0.184
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	-0.07	0.081	0.107
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.07	0.122	0.160
	N78	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.15	0.019	0.025
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.15	0.155	0.204
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.02	0.070	0.085
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	0.08	0.072	0.088
	N78	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.06	0.140	0.170
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.06	0.020	0.024
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	0.05	0.071	0.089
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	0.03	0.073	0.091
	N78	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	-0.14	0.145	0.181
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	-0.05	0.022	0.028
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.13	0.149	0.181
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.12	0.150	0.182
	N78	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.12	0.331	0.403
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	0.01	0.028	0.034
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.05	0.161	0.200
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.13	0.164	0.204
	N78	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.13	0.342	0.426
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.07	0.031	0.039
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 7	DSI 5	633334	3500.01	16.59	18.00	1.384	-	-	0.04	0.031	0.043
	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 7	DSI 5	633334	3500.01	16.59	18.00	1.384	-	-	-0.02	0.462	0.639
	N78	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 7	DSI 5	633334	3500.01	16.59	18.00	1.384	-	-	-0.11	0.145	0.201
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 7	DSI 5	633334	3500.01	16.59	18.00	1.384	-	-	-0.15	0.051	0.071
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 7	DSI 5	633334	3500.01	16.58	18.00	1.387	-	-	-0.05	0.035	0.049
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 7	DSI 5	633334	3500.01	16.58	18.00	1.387	-	-	-0.04	0.487	0.675
	N78	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 7	DSI 5	633334	3500.01	16.58	18.00	1.387	-	-	-0.15	0.147	0.204
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 7	DSI 5	633334	3500.01	16.58	18.00	1.387	-	-	0.11	0.053	0.073
	N78	100M	BPSK	270	0	DFT-30	Back	10mm	Ant 7	DSI 5	633334	3500.01	16.53	18.00	1.403	-	-	-0.05	0.451	0.633
	N78	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 7	DSI 5	650000	3750	16.63	18.00	1.371	-	-	0.07	0.042	0.058
39	N78	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 7	DSI 5	650000	3750	16.63	18.00	1.371	-	-	-0.04	0.606	0.831
	N78	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 7	DSI 5	650000	3750	16.63	18.00	1.371	-	-	0.05	0.174	0.239
	N78	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 7	DSI 5	650000	3750	16.63	18.00	1.371	-	-	-0.03	0.062	0.085
	N78	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 7	DSI 5	650000	3750	16.55	18.00	1.396	-	-	0.04	0.036	0.050
	N78	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 7	DSI 5	650000	3750	16.55	18.00	1.396	-	-	-0.09	0.522	0.729
	N78	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 7	DSI 5	650000	3750	16.55	18.00	1.396	-	-	-0.09	0.149	0.208
	N78	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 7	DSI 5	650000	3750	16.55	18.00	1.396	-	-	-0.02	0.058	0.081
	N78	100M	BPSK	270	0	DFT-30	Back	10mm	Ant 7	DSI 5	650000	3750	16.43	18.00	1.435	-	-	-0.05	0.554	0.795



EN-DC Main PA

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.07	0.040	0.054
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.15	0.047	0.063
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	0.08	0.056	0.075
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI 5	40620	2593	16.26	17.50	1.330	62.9	1.006	-0.12	0.070	0.094
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.09	0.043	0.058
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	-0.14	0.049	0.066
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Side	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	0.09	0.062	0.083
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Top Side	10mm	Ant 1	DSI 5	40620	2593	16.24	17.50	1.337	62.9	1.006	0.07	0.074	0.099
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.15	0.079	0.099
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.1	0.073	0.092
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	0.08	0.061	0.077
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 5	40620	2593	19.03	20.00	1.250	62.9	1.006	-0.04	0.094	0.118
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	-0.11	0.075	0.095
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	0.06	0.072	0.091
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	0.1	0.054	0.068
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 5	40620	2593	19.01	20.00	1.256	62.9	1.006	-0.13	0.090	0.114
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	-0.01	0.131	0.192
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.02	0.105	0.154
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Side	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.02	0.140	0.205
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Top Side	10mm	Ant 3	DSI 5	40620	2593	19.86	21.50	1.459	62.9	1.006	0.08	0.022	0.032
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.15	0.128	0.189
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	0.12	0.100	0.148
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Side	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	-0.06	0.138	0.204
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Top Side	10mm	Ant 3	DSI 5	40620	2593	19.83	21.50	1.469	62.9	1.006	0.08	0.019	0.028
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	0.05	0.301	0.364
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	0.02	0.369	0.446
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	-0.1	0.130	0.157
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 2	DSI 5	40620	2593	22.70	23.50	1.202	62.9	1.006	-0.06	0.382	0.462
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	0.13	0.294	0.356
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	-0.01	0.363	0.440
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	-0.04	0.131	0.159
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 2	DSI 5	40620	2593	22.69	23.50	1.205	62.9	1.006	0.15	0.375	0.455
3500-3900MHz																				
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.04	0.120	0.180
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.13	0.164	0.245
	N78_Main PA	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	-0.1	0.229	0.343
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 4	DSI 5	633334	3500.01	19.25	21.00	1.496	-	-	0.15	0.020	0.030
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	-0.12	0.131	0.197
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.08	0.181	0.273
	N78_Main PA	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.01	0.246	0.371
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 4	DSI 5	633334	3500.01	19.22	21.00	1.507	-	-	0.02	0.025	0.038
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	-0.12	0.083	0.120
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	0.16	0.120	0.173
	N78_Main PA	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	-0.08	0.207	0.299
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 4	DSI 5	650000	3750	19.40	21.00	1.445	-	-	0.13	0.023	0.033
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	0.06	0.080	0.117
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	0.05	0.117	0.171
	N78_Main PA	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	-0.07	0.204	0.298
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 4	DSI 5	650000	3750	19.36	21.00	1.459	-	-	-0.11	0.019	0.028
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	-0.03	0.076	0.097
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	-0.06	0.136	0.173



N78_Main PA	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	0.01	0.018	0.023
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 5	633334	3500.01	16.65	17.70	1.274	-	-	0.04	0.176	0.224
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	0.1	0.077	0.100
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.01	0.142	0.185
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.16	0.022	0.029
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 5	633334	3500.01	16.55	17.70	1.303	-	-	-0.04	0.177	0.231
N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.15	0.080	0.103
N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.09	0.105	0.135
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.15	0.016	0.021
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 5	650000	3750	16.60	17.70	1.288	-	-	-0.02	0.143	0.184
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	-0.07	0.081	0.107
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.07	0.122	0.160
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.15	0.019	0.025
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 5	650000	3750	16.51	17.70	1.315	-	-	0.15	0.155	0.204
N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.02	0.070	0.085
N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	0.08	0.072	0.088
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.06	0.140	0.170
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 6	DSI 5	633334	3500.01	15.65	16.50	1.216	-	-	-0.06	0.020	0.024
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	0.05	0.071	0.089
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	0.03	0.073	0.091
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	-0.14	0.145	0.181
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 6	DSI 5	633334	3500.01	15.53	16.50	1.250	-	-	-0.05	0.022	0.028
N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.13	0.149	0.181
N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.12	0.150	0.182
N78_Main PA	100M	BPSK	1	1	DFT-30	Right Side	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	-0.12	0.331	0.403
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 6	DSI 5	650000	3750	15.65	16.50	1.216	-	-	0.01	0.028	0.034
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.05	0.161	0.200
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.13	0.164	0.204
N78_Main PA	100M	BPSK	135	69	DFT-30	Right Side	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.13	0.342	0.426
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 6	DSI 5	650000	3750	15.55	16.50	1.245	-	-	-0.07	0.031	0.039
N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 7	DSI 5	633334	3500.01	14.60	16.00	1.380	-	-	0.03	0.020	0.028
N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 7	DSI 5	633334	3500.01	14.60	16.00	1.380	-	-	0.01	0.292	0.403
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 7	DSI 5	633334	3500.01	14.60	16.00	1.380	-	-	0.14	0.091	0.126
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 7	DSI 5	633334	3500.01	14.60	16.00	1.380	-	-	0.13	0.032	0.044
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 7	DSI 5	633334	3500.01	14.58	16.00	1.387	-	-	0.07	0.022	0.031
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 7	DSI 5	633334	3500.01	14.58	16.00	1.387	-	-	-0.12	0.307	0.426
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 7	DSI 5	633334	3500.01	14.58	16.00	1.387	-	-	0.01	0.093	0.129
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 7	DSI 5	633334	3500.01	14.58	16.00	1.387	-	-	-0.1	0.033	0.046
N78_Main PA	100M	BPSK	1	1	DFT-30	Front	10mm	Ant 7	DSI 5	650000	3750	14.65	16.00	1.365	-	-	-0.07	0.027	0.037
N78_Main PA	100M	BPSK	1	1	DFT-30	Back	10mm	Ant 7	DSI 5	650000	3750	14.65	16.00	1.365	-	-	0.16	0.382	0.521
N78_Main PA	100M	BPSK	1	1	DFT-30	Left Side	10mm	Ant 7	DSI 5	650000	3750	14.65	16.00	1.365	-	-	-0.05	0.110	0.150
N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	10mm	Ant 7	DSI 5	650000	3750	14.65	16.00	1.365	-	-	0.09	0.039	0.053
N78_Main PA	100M	BPSK	135	69	DFT-30	Front	10mm	Ant 7	DSI 5	650000	3750	14.51	16.00	1.409	-	-	-0.02	0.023	0.032
N78_Main PA	100M	BPSK	135	69	DFT-30	Back	10mm	Ant 7	DSI 5	650000	3750	14.51	16.00	1.409	-	-	-0.12	0.329	0.464
N78_Main PA	100M	BPSK	135	69	DFT-30	Left Side	10mm	Ant 7	DSI 5	650000	3750	14.51	16.00	1.409	-	-	-0.15	0.094	0.132
N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	10mm	Ant 7	DSI 5	650000	3750	14.51	16.00	1.409	-	-	-0.14	0.037	0.052



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Top Side	10mm	Ant 16	Full	39	2441	16.36	18.00	1.459	77.1	1.297	0.08	0.129	0.244
40	Bluetooth	DH5 1Mbps	Right Side	10mm	Ant 18	Full	39	2441	16.3	18.00	1.479	76.14	1.313	-0.07	0.166	0.322
41	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 16+18	Reduced	6	2437	16.56	17.50	1.242	100	1.000	0.02	0.194	0.241
5000MHz																
42	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 17+18	Reduced	42	5210	18.18	20.00	1.521	99.12	1.009	-0.04	0.185	0.284
43	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 17+18	Reduced	155	5775	13.71	15.50	1.510	99.12	1.009	-0.07	0.104	0.158

15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
44	LTE Band 12	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	23095	707.5	24.18	25.50	1.355	-	-	-0.17	0.177	0.240
	LTE Band 12	10M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	23095	707.5	24.98	25.50	1.127	-	-	0.09	0.134	0.151
45	LTE Band 17	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	23790	710	24.24	25.50	1.337	-	-	-0.04	0.174	0.233
	LTE Band 17	10M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	23790	710	24.97	25.50	1.130	-	-	0.09	0.143	0.162
	LTE Band 13	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	23230	782	24.24	25.50	1.337	-	-	0.08	0.138	0.184
46	LTE Band 13	10M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	23230	782	25.03	25.50	1.114	-	-	-0.05	0.222	0.247
850MHz																				
	GSM850					GPRS(4 Tx slots)	Back	15mm	Ant 1	DSI 4	189	836.4	26.31	28.00	1.476	-	-	0.07	0.156	0.230
47	GSM850					GPRS(4 Tx slots)	Back	15mm	Ant 0	DSI 4	189	836.4	26.72	28.00	1.343	-	-	0.1	0.216	0.290
48	WCDMA V					RMC 12.2Kbps	Back	15mm	Ant 1	DSI 4	4182	836.4	24.48	25.50	1.265	-	-	-0.04	0.226	0.286
	WCDMA V					RMC 12.2Kbps	Back	15mm	Ant 0	DSI 4	4182	836.4	24.34	25.50	1.306	-	-	0.09	0.207	0.270
49	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	20525	836.5	24.21	26.00	1.510	-	-	-0.15	0.240	0.362
	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 4	20525	836.5	24.47	25.50	1.268	-	-	-0.08	0.196	0.248
1750MHz																				
50	WCDMA IV					RMC 12.2Kbps	Back	15mm	Ant 1	DSI 4	1413	1732.6	23.26	24.00	1.186	-	-	0.08	0.549	0.651
	WCDMA IV					RMC 12.2Kbps	Back	15mm	Ant 2	DSI 4	1413	1732.6	24.39	25.00	1.151	-	-	0.06	0.442	0.509
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSI 4	20175	1732.5	23.66	25.00	1.361	-	-	-0.04	0.210	0.286
51	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	20175	1732.5	24.63	25.50	1.222	-	-	0.03	0.445	0.544
1900MHz																				
52	GSM1900					GPRS(4 Tx slots)	Back	15mm	Ant 1	DSI 4	661	1880	22.69	23.50	1.205	-	-	0.07	0.323	0.389
	GSM1900					GPRS(4 Tx slots)	Back	15mm	Ant 2	DSI 4	661	1880	24.69	25.00	1.074	-	-	0.05	0.154	0.165
53	WCDMA II					RMC 12.2Kbps	Back	15mm	Ant 1	DSI 4	9400	1880	22.79	23.50	1.178	-	-	0.09	0.659	0.776
	WCDMA II					RMC 12.2Kbps	Back	15mm	Ant 2	DSI 4	9400	1880	24.67	25.00	1.079	-	-	0.09	0.452	0.488
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	18900	1880	23.56	24.50	1.242	-	-	0.01	0.183	0.227
	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSI 4	18900	1880	23.56	24.50	1.242	-	-	0.07	0.231	0.287
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSI 4	18900	1880	22.66	23.50	1.213	-	-	-0.13	0.147	0.178
	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSI 4	18900	1880	22.66	23.50	1.213	-	-	0.15	0.183	0.222
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSI 4	18900	1880	23.92	24.50	1.143	-	-	-0.01	0.301	0.344
54	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	18900	1880	23.92	24.50	1.143	-	-	-0.15	0.390	0.446
	LTE Band 2	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSI 4	18900	1880	22.96	23.50	1.132	-	-	-0.07	0.245	0.277
	LTE Band 2	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSI 4	18900	1880	22.96	23.50	1.132	-	-	0.06	0.335	0.379
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	21100	2535	24.30	25.20	1.230	-	-	0.08	0.222	0.273
55	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	21100	2535	24.73	25.50	1.194	-	-	0.07	0.511	0.610
	LTE Band 38	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	38000	2595	24.62	25.70	1.282	62.9	1.006	0.09	0.142	0.183
56	LTE Band 38	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	38000	2595	24.45	25.50	1.274	62.9	1.006	-0.05	0.289	0.370
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSI 4	40620	2593	21.78	23.00	1.324	62.9	1.006	0.12	0.065	0.087
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	40620	2593	21.78	23.00	1.324	62.9	1.006	0.02	0.098	0.131
	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	40620+40422	2593+3573.2	21.73	23.00	1.340	62.9	1.006	-0.12	0.071	0.096



	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSI 4	40620	2593	20.76	22.00	1.330	62.9	1.006	-0.01	0.052	0.070
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSI 4	40620	2593	20.76	22.00	1.330	62.9	1.006	-0.08	0.077	0.103
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	40620	2593	21.01	22.00	1.256	62.9	1.006	0.05	0.063	0.080
	LTE Band 41C	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	40620+ 40422	2593+ 3573.2	20.95	22.00	1.274	62.9	1.006	-0.09	0.061	0.078
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 4	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.03	0.053	0.067
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSI 4	40620	2593	19.98	21.00	1.265	62.9	1.006	0.12	0.052	0.066
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSI 4	40620	2593	19.98	21.00	1.265	62.9	1.006	-0.04	0.044	0.056
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	40620	2593	23.39	25.00	1.449	62.9	1.006	-0.02	0.136	0.198
	LTE Band 41C	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	40620+ 40422	2593+ 3573.2	23.37	25.00	1.455	62.9	1.006	0.13	0.114	0.167
	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSI 4	40620	2593	23.39	25.00	1.449	62.9	1.006	0.05	0.116	0.169
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSI 4	40620	2593	22.34	24.00	1.466	62.9	1.006	0.13	0.105	0.155
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSI 4	40620	2593	22.34	24.00	1.466	62.9	1.006	-0.13	0.093	0.137
	LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSI 4	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.05	0.204	0.246
57	LTE Band 41	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.09	0.231	0.278
	LTE Band 41C	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	40620+ 40422	2593+ 3573.2	23.68	24.50	1.208	62.9	1.006	0.07	0.221	0.269
	LTE Band 41	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSI 4	40620	2593	22.70	23.50	1.202	62.9	1.006	0.03	0.162	0.196
	LTE Band 41	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSI 4	40620	2593	22.70	23.50	1.202	62.9	1.006	0.01	0.184	0.223
3500-3900MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 4	42590	3500	23.29	25.00	1.483	62.9	1.006	-0.09	0.096	0.143
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 4	DSI 4	42590	3500	23.29	25.00	1.483	62.9	1.006	-0.05	0.150	0.224
	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 4	DSI 4	42590+ 42788	3500+ 3519.8	23.19	25.00	1.517	62.9	1.006	0.11	0.143	0.218
	LTE Band 42	20M	QPSK	50	0	-	Front	15mm	Ant 4	DSI 4	42590	3500	22.35	24.00	1.462	62.9	1.006	0.09	0.089	0.131
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 4	DSI 4	42590	3500	22.35	24.00	1.462	62.9	1.006	0.02	0.118	0.174
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 5	DSI 4	42590	3500	24.96	25.70	1.186	62.9	1.006	-0.06	0.190	0.227
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 5	DSI 4	42590	3500	24.96	25.70	1.186	62.9	1.006	0.15	0.337	0.402
	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 5	DSI 4	42590+ 42788	3500+ 3519.8	24.78	25.70	1.236	62.9	1.006	-0.03	0.314	0.390
	LTE Band 42	20M	QPSK	50	0	-	Front	15mm	Ant 5	DSI 4	42590	3500	24.01	24.70	1.172	62.9	1.006	0.08	0.155	0.183
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 5	DSI 4	42590	3500	24.01	24.70	1.172	62.9	1.006	-0.11	0.261	0.308
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 6	DSI 4	42590	3500	23.13	23.50	1.089	62.9	1.006	0.09	0.123	0.135
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 6	DSI 4	42590	3500	23.13	23.50	1.089	62.9	1.006	0.03	0.144	0.158
	LTE Band 42	20M	QPSK	50	0	-	Front	15mm	Ant 6	DSI 4	42590	3500	23.11	23.50	1.094	62.9	1.006	-0.14	0.139	0.153
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 6	DSI 4	42590	3500	23.11	23.50	1.094	62.9	1.006	-0.08	0.151	0.166
	LTE Band 42C	20M	QPSK	50	0	-	Back	15mm	Ant 6	DSI 4	42590+ 42788	3500+ 3519.8	23.03	23.50	1.114	62.9	1.006	0.02	0.133	0.149
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 7	DSI 4	42590	3500	23.72	25.00	1.343	62.9	1.006	0.04	0.070	0.095
58	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 7	DSI 4	42590	3500	23.72	25.00	1.343	62.9	1.006	-0.04	0.732	0.989
	LTE Band 42C	20M	QPSK	1	0	-	Back	15mm	Ant 7	DSI 4	42590+ 42788	3500+ 3519.8	23.64	25.00	1.368	62.9	1.006	-0.15	0.710	0.977
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 7	DSI 4	42190	3460	23.62	25.00	1.374	62.9	1.006	-0.13	0.689	0.952
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 7	DSI 4	42990	3540	23.51	25.00	1.409	62.9	1.006	-0.06	0.695	0.985
	LTE Band 42	20M	QPSK	50	0	-	Front	15mm	Ant 7	DSI 4	42590	3500	22.84	24.00	1.306	62.9	1.006	-0.15	0.051	0.067
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 7	DSI 4	42590	3500	22.84	24.00	1.306	62.9	1.006	0.15	0.613	0.805
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 7	DSI 4	42190	3460	22.73	24.00	1.340	62.9	1.006	0.13	0.585	0.788
	LTE Band 42	20M	QPSK	50	0	-	Back	15mm	Ant 7	DSI 4	42990	3540	22.70	24.00	1.349	62.9	1.006	-0.09	0.589	0.799
	LTE Band 42	20M	QPSK	100	0	-	Back	15mm	Ant 7	DSI 4	42590	3500	22.69	24.00	1.352	62.9	1.006	0.01	0.621	0.845
	N77	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 4	DSI 4	633334	3500.01	24.45	25.50	1.274	-	-	0.04	0.374	0.476
	N77	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 5	DSI 4	633334	3500.01	24.34	25.70	1.368	-	-	0.03	0.451	0.617
	N77	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 6	DSI 4	656000	3840	18.60	20.00	1.380	-	-	0.09	0.212	0.293
59	N77	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 7	DSI 4	656000	3840	19.03	20.50	1.403	-	-	0.09	0.518	0.727
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 4	DSI 4	633334	3500.01	23.32	25.00	1.472	-	-	0.15	0.156	0.230
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 4	DSI 4	633334	3500.01	23.32	25.00	1.472	-	-	0.05	0.283	0.417
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 4	DSI 4	633334	3500.01	23.31	25.00	1.476	-	-	0.12	0.169	0.249
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 4	DSI 4	633334	3500.01	23.31	25.00	1.476	-	-	-0.15	0.307	0.453
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 4	DSI 4	650000	3750	23.35	25.00	1.462	-	-	-0.09	0.123	0.180
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 4	DSI 4	650000	3750	23.35	25.00	1.462	-	-	-0.14	0.137	0.200
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 4	DSI 4	650000	3750	23.27	25.00	1.489	-	-	0.01	0.120	0.179



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	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 4	DSI 4	650000	3750	23.27	25.00	1.489	-	-	0.13	0.127	0.189
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 4	633334	3500.01	24.65	25.70	1.274	-	-	-0.11	0.268	0.341
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 5	DSI 4	633334	3500.01	24.65	25.70	1.274	-	-	0.14	0.375	0.478
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 5	DSI 4	633334	3500.01	24.53	25.70	1.309	-	-	-0.07	0.252	0.330
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 5	DSI 4	633334	3500.01	24.53	25.70	1.309	-	-	-0.12	0.360	0.471
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 4	650000	3750	24.56	25.70	1.300	-	-	-0.02	0.269	0.350
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 5	DSI 4	650000	3750	24.56	25.70	1.300	-	-	-0.12	0.389	0.506
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 5	DSI 4	650000	3750	24.48	25.70	1.324	-	-	-0.1	0.250	0.331
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 5	DSI 4	650000	3750	24.48	25.70	1.324	-	-	0.03	0.366	0.485
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 6	DSI 4	633334	3500.01	19.54	20.50	1.247	-	-	0.15	0.094	0.117
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 6	DSI 4	633334	3500.01	19.54	20.50	1.247	-	-	0.06	0.096	0.120
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 6	DSI 4	633334	3500.01	19.50	20.50	1.259	-	-	-0.08	0.097	0.122
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 6	DSI 4	633334	3500.01	19.50	20.50	1.259	-	-	-0.08	0.101	0.127
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 6	DSI 4	650000	3750	19.60	20.50	1.230	-	-	-0.07	0.187	0.230
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 6	DSI 4	650000	3750	19.60	20.50	1.230	-	-	0.01	0.199	0.245
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 6	DSI 4	650000	3750	19.51	20.50	1.256	-	-	0.13	0.207	0.260
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 6	DSI 4	650000	3750	19.51	20.50	1.256	-	-	-0.04	0.235	0.295
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 7	DSI 4	633334	3500.01	21.09	22.50	1.384	-	-	0.02	0.017	0.024
	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 7	DSI 4	633334	3500.01	21.09	22.50	1.384	-	-	0.15	0.531	0.735
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 7	DSI 4	633334	3500.01	21.06	22.50	1.393	-	-	0.08	0.021	0.029
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 7	DSI 4	633334	3500.01	21.06	22.50	1.393	-	-	0.16	0.556	0.775
	N78	100M	BPSK	270	0	DFT-30	Back	15mm	Ant 7	DSI 4	633334	3500.01	20.99	22.50	1.416	-	-	0.16	0.511	0.723
	N78	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 7	DSI 4	650000	3750	21.02	22.50	1.406	-	-	-0.12	0.024	0.034
60	N78	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 7	DSI 4	650000	3750	21.02	22.50	1.406	-	-	0.07	0.737	1.036
	N78	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 7	DSI 4	650000	3750	20.95	22.50	1.429	-	-	0.04	0.020	0.029
	N78	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 7	DSI 4	650000	3750	20.95	22.50	1.429	-	-	-0.03	0.679	0.970
	N78	100M	BPSK	270	0	DFT-30	Back	15mm	Ant 7	DSI 4	650000	3750	20.91	22.50	1.442	-	-	0.03	0.668	0.963



EN-DC Main PA

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSI 4	40620	2593	21.78	23.00	1.324	62.9	1.006	0.12	0.065	0.087
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSI 4	40620	2593	21.78	23.00	1.324	62.9	1.006	0.02	0.098	0.131
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSI 4	40620	2593	20.76	22.00	1.330	62.9	1.006	-0.01	0.052	0.070
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSI 4	40620	2593	20.76	22.00	1.330	62.9	1.006	-0.08	0.077	0.103
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 4	40620	2593	21.01	22.00	1.256	62.9	1.006	0.05	0.063	0.080
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 4	40620	2593	21.01	22.00	1.256	62.9	1.006	-0.03	0.053	0.067
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSI 4	40620	2593	19.98	21.00	1.265	62.9	1.006	0.12	0.052	0.066
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSI 4	40620	2593	19.98	21.00	1.265	62.9	1.006	-0.04	0.044	0.056
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	15mm	Ant 3	DSI 4	40620	2593	23.39	25.00	1.449	62.9	1.006	-0.02	0.136	0.198
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	15mm	Ant 3	DSI 4	40620	2593	23.39	25.00	1.449	62.9	1.006	0.05	0.116	0.169
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	15mm	Ant 3	DSI 4	40620	2593	22.34	24.00	1.466	62.9	1.006	0.13	0.105	0.155
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	15mm	Ant 3	DSI 4	40620	2593	22.34	24.00	1.466	62.9	1.006	-0.13	0.093	0.137
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSI 4	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.05	0.204	0.246
	LTE Band 41_Main PA	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI 4	40620	2593	23.72	24.50	1.197	62.9	1.006	-0.09	0.231	0.278
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSI 4	40620	2593	22.70	23.50	1.202	62.9	1.006	0.03	0.162	0.196
	LTE Band 41_Main PA	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSI 4	40620	2593	22.70	23.50	1.202	62.9	1.006	0.01	0.184	0.223
3500-3900MHz																				
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 4	DSI 4	333334	3500.01	23.32	25.00	1.472	-	-	0.15	0.156	0.230
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 4	DSI 4	333334	3500.01	23.32	25.00	1.472	-	-	0.05	0.283	0.417
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 4	DSI 4	333334	3500.01	23.31	25.00	1.476	-	-	0.12	0.169	0.249
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 4	DSI 4	333334	3500.01	23.31	25.00	1.476	-	-	-0.15	0.307	0.453
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 4	DSI 4	500000	3750	23.35	25.00	1.462	-	-	-0.09	0.123	0.180
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 4	DSI 4	500000	3750	23.35	25.00	1.462	-	-	-0.14	0.137	0.200
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 4	DSI 4	500000	3750	23.27	25.00	1.489	-	-	0.01	0.120	0.179
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 4	DSI 4	500000	3750	23.27	25.00	1.489	-	-	0.13	0.127	0.189
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 4	333334	3500.01	24.65	25.70	1.274	-	-	-0.11	0.268	0.341
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 5	DSI 4	333334	3500.01	24.65	25.70	1.274	-	-	0.14	0.375	0.478
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 5	DSI 4	333334	3500.01	24.53	25.70	1.309	-	-	-0.07	0.252	0.330
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 5	DSI 4	333334	3500.01	24.53	25.70	1.309	-	-	-0.12	0.360	0.471
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 4	500000	3750	24.56	25.70	1.300	-	-	-0.02	0.269	0.350
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 5	DSI 4	500000	3750	24.56	25.70	1.300	-	-	-0.12	0.389	0.506
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 5	DSI 4	500000	3750	24.48	25.70	1.324	-	-	-0.1	0.250	0.331
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 5	DSI 4	500000	3750	24.48	25.70	1.324	-	-	0.03	0.366	0.485
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 6	DSI 4	333334	3500.01	19.54	20.50	1.247	-	-	0.15	0.094	0.117
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 6	DSI 4	333334	3500.01	19.54	20.50	1.247	-	-	0.06	0.096	0.120
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 6	DSI 4	333334	3500.01	19.50	20.50	1.259	-	-	-0.08	0.097	0.122
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 6	DSI 4	333334	3500.01	19.50	20.50	1.259	-	-	-0.08	0.101	0.127
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 6	DSI 4	500000	3750	19.60	20.50	1.230	-	-	-0.07	0.187	0.230
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 6	DSI 4	500000	3750	19.60	20.50	1.230	-	-	0.01	0.199	0.245
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 6	DSI 4	500000	3750	19.51	20.50	1.256	-	-	0.13	0.207	0.260
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 6	DSI 4	500000	3750	19.51	20.50	1.256	-	-	-0.04	0.235	0.295
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 7	DSI 4	333334	3500.01	18.02	19.50	1.406	-	-	0.05	0.009	0.013
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 7	DSI 4	333334	3500.01	18.02	19.50	1.406	-	-	0.06	0.266	0.374
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 7	DSI 4	333334	3500.01	18.00	19.50	1.413	-	-	0.02	0.011	0.016
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 7	DSI 4	333334	3500.01	18.00	19.50	1.413	-	-	-0.13	0.279	0.394
	N78_Main PA	100M	BPSK	1	1	DFT-30	Front	15mm	Ant 7	DSI 4	500000	3750	18.05	19.50	1.396	-	-	-0.16	0.012	0.017
	N78_Main PA	100M	BPSK	1	1	DFT-30	Back	15mm	Ant 7	DSI 4	500000	3750	18.05	19.50	1.396	-	-	0.06	0.363	0.507
	N78_Main PA	100M	BPSK	135	69	DFT-30	Front	15mm	Ant 7	DSI 4	500000	3750	17.94	19.50	1.432	-	-	-0.03	0.010	0.014
	N78_Main PA	100M	BPSK	135	69	DFT-30	Back	15mm	Ant 7	DSI 4	500000	3750	17.94	19.50	1.432	-	-	0.16	0.340	0.487



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	Bluetooth	DH5 1Mbps	Back	15mm	Ant 16	Full	39	2441	16.36	18.00	1.459	77.1	1.297	0.09	0.049	0.093
61	Bluetooth	DH5 1Mbps	Front	15mm	Ant 18	Full	39	2441	16.3	18.00	1.479	76.14	1.313	-0.04	0.052	0.102
62	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 16+18	Full	6	2437	22.54	23.50	1.247	100	1.000	-0.04	0.197	0.246
5000MHz																
63	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 17+18	Full	64	5320	22.16	23.50	1.361	99.31	1.007	0.13	0.309	0.424
64	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 17+18	Full	122	5610	20.19	21.50	1.352	99.12	1.009	-0.03	0.271	0.370
65	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 17+18	Full	155	5775	19.67	21.50	1.524	99.12	1.009	-0.09	0.266	0.409

15.4 Product Specific SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 1	DSI 3	1413	1732.6	21.29	22.00	1.178	-	-	-0.07	1.820	2.143
66	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 2	DSI 3	1413	1732.6	23.92	24.50	1.143	-	-	0.11	2.260	2.583
	LTE Band 4	20M	QPSK	50	0	-	Left Side	0mm	Ant 3	DSI 3	20175	1732.5	21.57	23.00	1.390	-	-	-0.05	1.610	2.238
67	LTE Band 4	20M	QPSK	1	0	-	Back	0mm	Ant 2	DSI 3	20175	1732.5	22.08	23.00	1.236	-	-	-0.07	1.980	2.447
1900MHz																				
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 3	9400	1880	20.27	21.00	1.183	-	-	0.1	1.400	1.656
68	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 2	DSI 3	9538	1907.6	22.70	23.00	1.072	-	-	0.04	1.960	2.100
	LTE Band 2	20M	QPSK	1	0	-	Left Side	0mm	Ant 3	DSI 3	18900	1880	22.08	23.00	1.236	-	-	-0.06	1.390	1.718
	LTE Band 2	20M	QPSK	1	0	-	Left Side	5mm	Ant 3	DSI 4	18900	1880	23.56	24.50	1.242	-	-	0.13	0.992	1.232
	LTE Band 2	20M	QPSK	50	0	-	Left Side	0mm	Ant 3	DSI 3	18900	1880	22.03	23.00	1.250	-	-	0.16	1.450	1.813
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 3	DSI 4	18900	1880	22.66	23.50	1.213	-	-	-0.01	0.805	0.977
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI 3	18900	1880	23.92	24.50	1.143	-	-	0.03	1.950	2.229
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI 3	18700	1860	23.74	24.50	1.191	-	-	0.09	1.840	2.192
69	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI 3	19100	1900	23.82	24.50	1.169	-	-	-0.15	1.970	2.304
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	15mm	Ant 2	DSI 4	19100	1900	23.82	24.50	1.169	-	-	-0.06	0.299	0.350
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 2	DSI 3	18900	1880	22.96	23.50	1.132	-	-	-0.08	1.630	1.846
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 2	DSI 3	18700	1860	22.79	23.50	1.178	-	-	-0.06	1.500	1.766
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 2	DSI 3	19100	1900	22.84	23.50	1.164	-	-	0.09	1.780	2.072
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 2	DSI 3	19100	1900	22.86	23.50	1.159	-	-	0.12	1.630	1.889
2600MHz																				
70	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI 3	21100	2535	21.78	22.50	1.180	-	-	0.04	1.130	1.334
3500-3900MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 7	DSI 3	42590	3500	20.15	21.50	1.365	62.9	1.006	-0.1	1.590	2.183
	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 7	DSI 3	42190	3460	20.08	21.50	1.387	62.9	1.006	0.06	1.510	2.107
	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 7	DSI 3	42990	3540	20.03	21.50	1.403	62.9	1.006	0.01	1.530	2.159
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 7	DSI 4	42590	3500	23.72	25.00	1.343	62.9	1.006	-0.11	1.290	1.743
71	LTE Band 42	20M	QPSK	50	0	-	Back	0mm	Ant 7	DSI 3	42590	3500	20.13	21.50	1.371	62.9	1.006	0.14	1.680	2.317
	LTE Band 42C	20M	QPSK	50	0	-	Back	0mm	Ant 7	DSI 3	42590+42788	3500+3519.8	20.09	21.50	1.384	62.9	1.006	-0.02	1.560	2.171
	LTE Band 42	20M	QPSK	50	0	-	Back	0mm	Ant 7	DSI 3	42190	3460	20.11	21.50	1.377	62.9	1.006	0.11	1.570	2.175
	LTE Band 42	20M	QPSK	50	0	-	Back	0mm	Ant 7	DSI 3	42990	3540	20.03	21.50	1.403	62.9	1.006	0.08	1.630	2.300
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 7	DSI 4	42590	3500	22.84	24.00	1.306	62.9	1.006	-0.08	1.350	1.774
	LTE Band 42	20M	QPSK	100	0	-	Back	0mm	Ant 7	DSI 3	42590	3500	20.10	21.50	1.380	62.9	1.006	-0.11	1.110	1.541
	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant 7	DSI 4	42590	3500	22.69	24.00	1.352	62.9	1.006	0.09	1.300	1.768
	N77	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant 5	DSI 3	833334	3500.01	17.85	19.20	1.365	-	-	0.08	1.690	2.306
72	N77	100M	BPSK	1	1	DFT-30	Right Side	0mm	Ant 6	DSI 4	856000	3840	18.60	20.00	1.380	-	-	0.02	1.760	2.429
	N77	100M	BPSK	1	1	DFT-30	Back	0mm	Ant 7	DSI 3	856000	3840	15.03	16.50	1.403	-	-	0.09	1.160	1.627



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	N77	100M	BPSK	1	1	DFT-30	Back	5mm	Ant 7	DSI 4	856000	3840	19.05	20.50	1.396	-	-	0.08	1.560	2.178
	N78	100M	BPSK	1	1	DFT-30	Back	0mm	Ant 7	DSI 3	833334	3500.01	16.59	18.00	1.384	-	-	0.05	0.777	1.075
	N78	100M	BPSK	1	1	DFT-30	Back	5mm	Ant 7	DSI 4	833334	3500.01	21.09	22.50	1.384	-	-	-0.07	1.090	1.508
	N78	100M	BPSK	135	69	DFT-30	Back	0mm	Ant 7	DSI 3	833334	3500.01	16.58	18.00	1.387	-	-	0.05	0.826	1.145
	N78	100M	BPSK	135	69	DFT-30	Back	5mm	Ant 7	DSI 4	833334	3500.01	21.06	22.50	1.393	-	-	-0.15	1.150	1.602
	N78	100M	BPSK	270	0	DFT-30	Back	5mm	Ant 7	DSI 4	833334	3500.01	20.99	22.50	1.416	-	-	-0.15	1.030	1.458
	N78	100M	BPSK	1	1	DFT-30	Back	0mm	Ant 7	DSI 3	850000	3750	16.63	18.00	1.371	-	-	-0.14	0.934	1.280
	N78	100M	BPSK	1	1	DFT-30	Back	5mm	Ant 7	DSI 4	850000	3750	21.02	22.50	1.406	-	-	-0.13	1.510	2.123
	N78	100M	BPSK	135	69	DFT-30	Back	0mm	Ant 7	DSI 3	850000	3750	16.55	18.00	1.396	-	-	0.11	0.955	1.334
73	N78	100M	BPSK	135	69	DFT-30	Back	5mm	Ant 7	DSI 4	850000	3750	20.95	22.50	1.429	-	-	-0.02	1.560	2.229
	N78	100M	BPSK	270	0	DFT-30	Back	5mm	Ant 7	DSI 4	850000	3750	20.91	22.50	1.442	-	-	-0.06	1.490	2.149

EN-DC Main PA

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
3500-3900MHz																			
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant 5	DSI 3	633334	3500.01	16.65	17.70	1.274	-0.14	0.939	1.196	
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant 5	DSI 4	633334	3500.01	24.65	25.70	1.274	-0.16	1.470	1.872	
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant 5	DSI 3	633334	3500.01	16.55	17.70	1.303	0.14	0.916	1.194	
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant 5	DSI 4	633334	3500.01	24.53	25.70	1.309	-0.04	1.360	1.780	
	N78_Main PA	100M	BPSK	270	0	DFT-30	Top Side	5mm	Ant 5	DSI 4	633334	3500.01	24.15	25.20	1.274	0.03	1.200	1.528	
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant 5	DSI 3	650000	3750	16.60	17.70	1.288	-0.1	0.897	1.156	
	N78_Main PA	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant 5	DSI 4	650000	3750	24.56	25.70	1.300	0.07	1.130	1.469	
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant 5	DSI 3	650000	3750	16.51	17.70	1.315	0.06	0.866	1.139	
	N78_Main PA	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant 5	DSI 4	650000	3750	24.48	25.70	1.324	-0.02	1.050	1.391	

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
5000MHz																
74	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 17+18	Full	56	5280	22.14	23.50	1.368	99.31	1.007	0.16	1.630	2.245
75	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 17+18	Full	138	5690	19.65	21.50	1.531	99.12	1.009	-0.03	1.290	1.993
76	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 17+18	Full	155	5775	19.67	21.50	1.524	99.12	1.009	-0.09	1.410	2.168



15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 7	20M	QPSK	50	0		Right Cheek	0mm	Ant 3	DSI 1	21100	2535	20.00	21.20	1.318			-0.08	0.812	1	1.070
2nd	LTE Band 7	20M	QPSK	50	0		Right Cheek	0mm	Ant 3	DSI 1	21100	2535	20.00	21.20	1.318			-0.01	0.789	1.029	1.040
1st	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245			0.02	0.862	1	1.073
2nd	N78	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI 1	650000	3750	15.55	16.50	1.245			0.09	0.847	1.018	1.054
1st	WLAN2.4GHz					802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Standalone	11	2462	17.94	19.00	1.276	100	1.000	0.15	0.808	1	1.031
2nd	WLAN2.4GHz					802.11b 1Mbps	Left Cheek	0mm	Ant 16+18	Standalone	11	2462	17.94	19.00	1.276	100	1.000	0.04	0.787	1.027	1.005
1st	WLAN5GHz					802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 17+18	Standalone	114	5570	17.91	19.00	1.285	99.3	1.007	0.08	0.802	1	1.038
2nd	WLAN5GHz					802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 17+18	Standalone	114	5570	17.91	19.00	1.285	99.3	1.007	0.09	0.786	1.020	1.017
1st	LTE Band 2	20M	QPSK	1	0		Bottom Side	10mm	Ant 2	DSI 5	19100	1900	23.30	24.00	1.175			-0.04	0.925	1	1.087
2nd	LTE Band 2	20M	QPSK	1	0		Bottom Side	10mm	Ant 2	DSI 5	19100	1900	23.30	24.00	1.175			0.09	0.903	1.024	1.061

<10g>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Ant 2	DSI 3	1413	1732.6	23.92	24.50	1.143	0.11	2.260	1	2.583
2nd	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Ant 2	DSI 3	1413	1732.6	23.92	24.50	1.143	0.07	2.150	1.051	2.457

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8W/kg$.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45W/kg$, only one repeated measurement is required.
- Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
- The ratio is the difference in percentage between original and repeated *measured SAR*.
- All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	Bluetooth + WLAN5GHz	Yes	Yes	Yes	Yes
5.	WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
6.	WWAN + Bluetooth + WLAN5GHz	Yes	Yes	Yes	Yes
7.	WWAN + WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP) and LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- 5G NR NSA EN-DC mode, standalone SAR performed for 5GNR band with the maximum power, EN-DC SAR summed 5GNR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- WLAN2.4GHz and Bluetooth share the same antenna, so can't transmit simultaneously.
- According to the characteristic of EUT, WLAN5GHz and Bluetooth can transmit simultaneously.
- According to the EUT character, WLAN 2.4GHz and WLAN 5GHz can transmit simultaneously.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- For standalone WWAN, always choose the highest SAR among all WWAN bands for each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each bands.
- For Inter Band CA and EN-DC, always choose the highest SAR among same antenna of all WWAN bands to perform simultaneous transmission analysis with WLAN/BT. The worst co-located analysis and can represent each LTE/NR bands.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
- For simultaneously transmission SAR analysis, spot check SAR value and the referenced SAR value (Sporton Report Number FA253108), always choose the higher SAR to do co-location.

16.1 Head Exposure Conditions

WWAN Band	Exposure Position	4	7	4+7
		WLAN2.4GHz Ant 16+18	WLAN5GHz Ant 17+18	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
DBS	Right Cheek	0.443	0.330	0.77
	Right Tilted	0.217	0.312	0.53
	Left Cheek	0.791	0.772	1.56
	Left Tilted	0.594	0.696	1.29

WWAN Band	Exposure Position	1	5	8	9	10	1+5+8	1+8+9	1+8+10
		WWAN	WLAN2.4GHz_ Ant 16+18	WLAN5GHz_ Ant 17+18	Bluetooth_ Ant 16	Bluetooth_ Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Right Cheek	1.070	0.134	0.108	0.093	0.063	1.31	1.27	1.24
	Right Tilted	0.522	0.065	0.104	0.077	0.010	0.69	0.70	0.64
	Left Cheek	1.073	0.229	0.237	0.163	0.135	1.54	1.47	1.45
	Left Tilted	0.931	0.179	0.222	0.159	0.022	1.33	1.31	1.18

EN-DC

WWAN Band	Exposure Position	1	2	5	8	9	10	1+2+5+8	1+2+8+9	1+2+8+10
		WWAN	WWAN	WLAN2.4GHz_ Ant 16+18	WLAN5GHz_ Ant 17+18	Bluetooth_ Ant 16	Bluetooth_ Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Right Cheek	0.501	0.527	0.134	0.108	0.093	0.063	1.27	1.23	1.20
	Right Tilted	0.253	0.316	0.065	0.104	0.077	0.010	0.74	0.75	0.68
	Left Cheek	0.230	0.530	0.229	0.237	0.163	0.135	1.23	1.16	1.13
	Left Tilted	0.146	0.530	0.179	0.222	0.159	0.022	1.08	1.06	0.92



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	4	7	4+7
		WLAN2.4GHz Ant 16+18	WLAN5GHz Ant 17+18	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
DBS	Front	0.101	0.181	0.28
	Back	0.134	0.227	0.36
	Left side	0.005	0.034	0.04
	Right side	0.241	0.209	0.45
	Top side	0.047	0.284	0.33
	Bottom side			0.00

WWAN Band	Exposure Position	1	5	8	9	10	1+5+8	1+8+9	1+8+10
		WWAN	WLAN2.4GHz Ant 16+18	WLAN5GHz Ant 17+18	Bluetooth Ant 16	Bluetooth Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Front	0.616	0.101	0.181	0.134	0.188	0.90	0.93	0.99
	Back	1.025	0.134	0.227	0.157	0.144	1.39	1.41	1.40
	Left side	0.583	0.005	0.034	0.009	0.008	0.62	0.63	0.63
	Right side	0.514	0.241	0.209	0.072	0.322	0.96	0.80	1.05
	Top side	0.330	0.047	0.284	0.244	0.033	0.66	0.86	0.65
	Bottom side	1.087					1.09	1.09	1.09

EN-DC

WWAN Band	Exposure Position	1	2	5	8	9	10	1+2+5+8	1+2+8+9	1+2+8+10
		WWAN	WWAN	WLAN2.4GHz Ant 16+18	WLAN5GHz Ant 17+18	Bluetooth Ant 16	Bluetooth Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Front	0.364	0.200	0.101	0.181	0.134	0.188	0.85	0.88	0.93
	Back	0.446	0.521	0.134	0.227	0.157	0.144	1.33	1.35	1.34
	Left side	0.205	0.371	0.005	0.034	0.009	0.008	0.62	0.62	0.62
	Right side	0.077	0.426	0.241	0.209	0.072	0.322	0.95	0.78	1.03
	Top side	0.099	0.231	0.047	0.284	0.244	0.033	0.66	0.86	0.65
	Bottom side	0.462						0.46	0.46	0.46



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	4	7	4+7
		WLAN2.4GHz Ant 16+18	WLAN5GHz Ant 17+18	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
DBS	Front	0.188	0.308	0.50
	Back	0.246	0.424	0.67

WWAN Band	Exposure Position	1	5	8	9	10	1+5+8	1+8+9	1+8+10
		WWAN	WLAN2.4GHz Ant 16+18	WLAN5GHz_Ant 17+18	Bluetooth Ant 16	Bluetooth Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Front	0.350	0.188	0.173	0.055	0.102	0.71	0.58	0.63
	Back	1.036	0.246	0.182	0.093	0.073	1.46	1.31	1.29

EN-DC

WWAN Band	Exposure Position	1	2	5	8	9	10	1+2+5+8	1+2+8+9	1+2+8+10
		WWAN	WWAN	WLAN2.4GHz Ant 16+18	WLAN5GHz_Ant 17+18	Bluetooth Ant 16	Bluetooth Ant 18	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN Bands	Front	0.246	0.350	0.188	0.173	0.055	0.102	0.96	0.82	0.87
	Back	0.278	0.507	0.246	0.182	0.093	0.073	1.21	1.06	1.04

16.4 Product specific 10g SAR Exposure Conditions

Remark:

1. For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

WWAN Band	Exposure Position	4	7	4+7
		WLAN1.4GHz Ant 17+18	WLAN5GHz Ant 17+18	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
DBS	Front		1.590	1.59
	Back		0.910	0.91
	Left side		0.133	0.13
	Right side		2.369	2.37
	Top side		2.245	2.25
	Bottom side			0.00

WWAN Band	Exposure Position	1	8	1+8
		WWAN	WLAN5GHz_Ant 17+18	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
WWAN Band	Front		0.836	0.84
	Back	2.447	0.474	2.92
	Left side	2.238	0.064	2.30
	Right side	2.429	1.281	3.71
	Top side	2.306	1.320	3.63
	Bottom side	2.583		2.58

EN-DC

WWAN Band	Exposure Position	1	2	8	1+2+8
		WWAN	WWAN	WLAN5GHz_Ant 17+18	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
WWAN Band	Front			0.836	0.84
	Back			0.474	0.47
	Left side			0.064	0.06
	Right side			1.281	1.28
	Top side		1.872	1.320	3.19
	Bottom side				0.00

Test Engineer : Hank Huang, Kevin Xu, David Dai, Bin He



17. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.



18. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.
- [7] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [8] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [9] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [10] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [11] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [12] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [13] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

-----THE END-----



Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_750MHz

DUT: D750V3-SN:1099

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium: HSL_750_220703 Medium parameters used: $f = 750$ MHz; $\sigma = 0.881$ S/m; $\epsilon_r = 40.783$; $\rho = 1000$ kg/m³

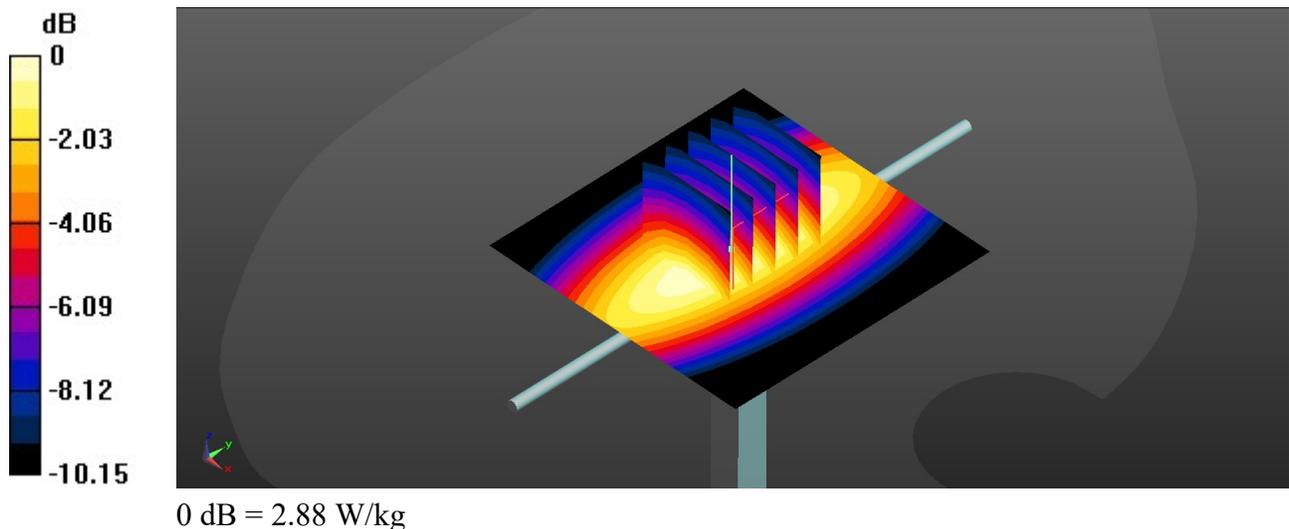
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(11.1, 11.1, 11.1); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.91 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.96 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 2.2 W/kg; SAR(10 g) = 1.47 W/kg
Maximum value of SAR (measured) = 2.88 W/kg



System Check_Head_835MHz

DUT: D835V2-SN:4d162

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL_835_220704 Medium parameters used: $f = 835$ MHz; $\sigma = 0.902$ S/m; $\epsilon_r = 40.749$; $\rho = 1000$ kg/m³

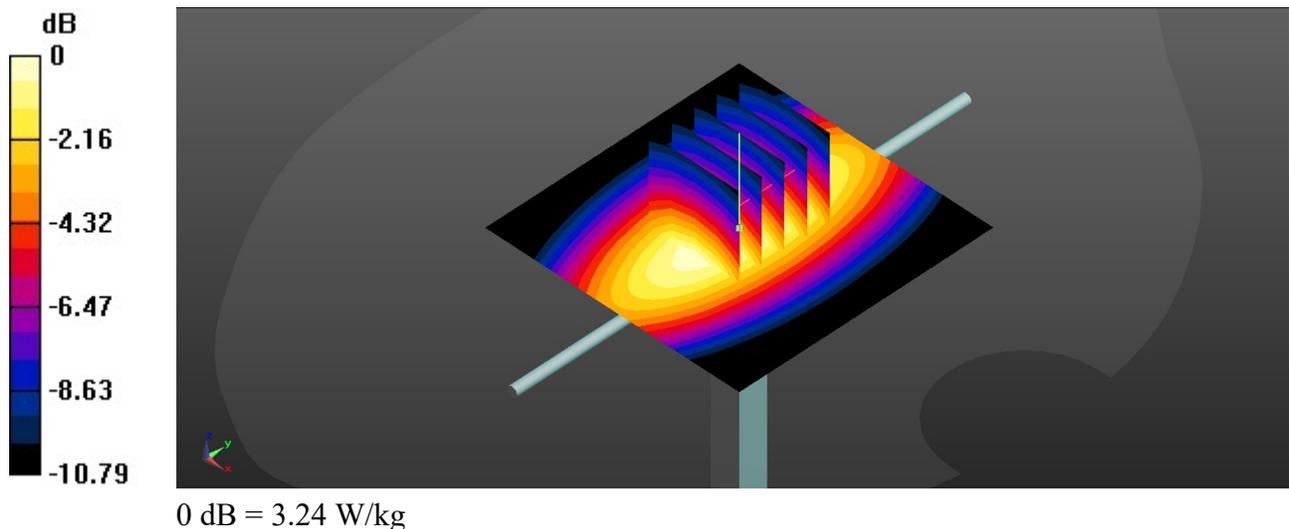
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(10.81, 10.81, 10.81); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.28 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 63.09 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.6 W/kg
Maximum value of SAR (measured) = 3.24 W/kg



System Check_Head_1750MHz

DUT: D1750V2-SN:1137

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL_1750_220626 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.362$ S/m; $\epsilon_r = 41.34$; $\rho = 1000$ kg/m³

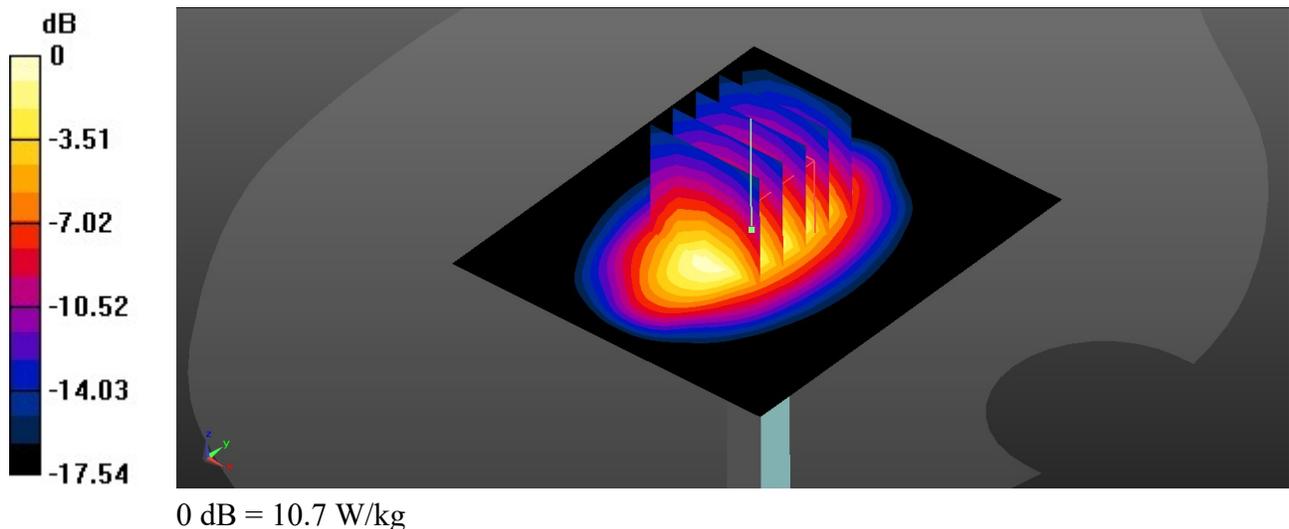
Ambient Temperature : 23.5 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(9.47, 9.47, 9.47); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 11.8 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 94.13 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 13.2 W/kg
SAR(1 g) = 9.23 W/kg; SAR(10 g) = 4.63 W/kg
Maximum value of SAR (measured) = 10.7 W/kg



System Check_Head_1750MHz

DUT: D1750V2-SN:1137

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL_1750_220706 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.378$ S/m; $\epsilon_r = 40.204$; $\rho = 1000$ kg/m³

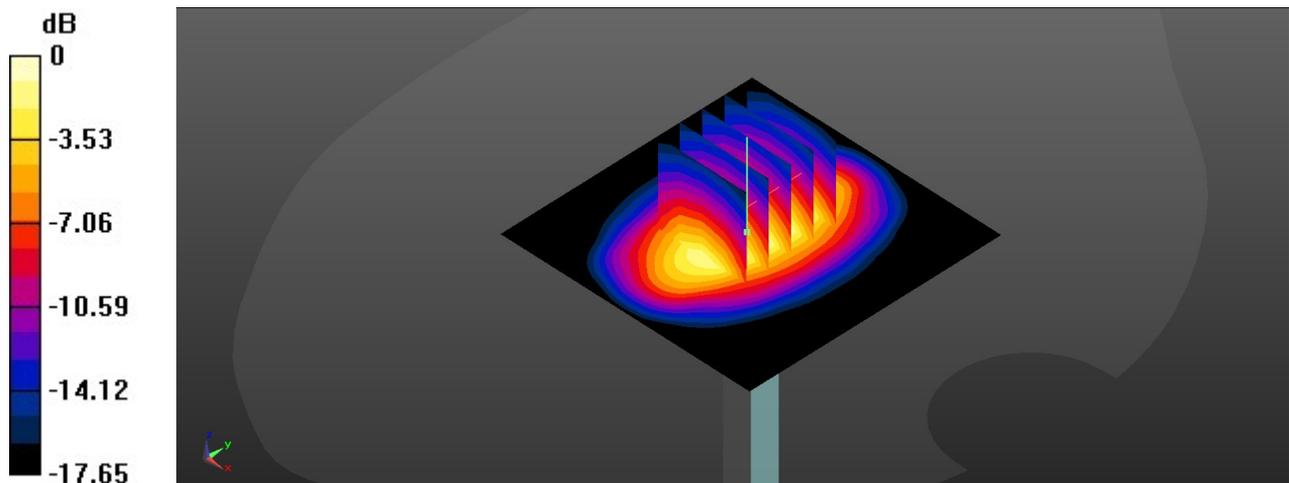
Ambient Temperature : 23.5 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(9.47, 9.47, 9.47); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 14.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 101.5 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.07 W/kg; SAR(10 g) = 4.82 W/kg
Maximum value of SAR (measured) = 14.0 W/kg



0 dB = 14.0 W/kg

System Check_Head_1900MHz

DUT: D1900V2-SN:5d182

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL_1900_220627 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.451$ S/m; $\epsilon_r = 39.099$; $\rho = 1000$ kg/m³

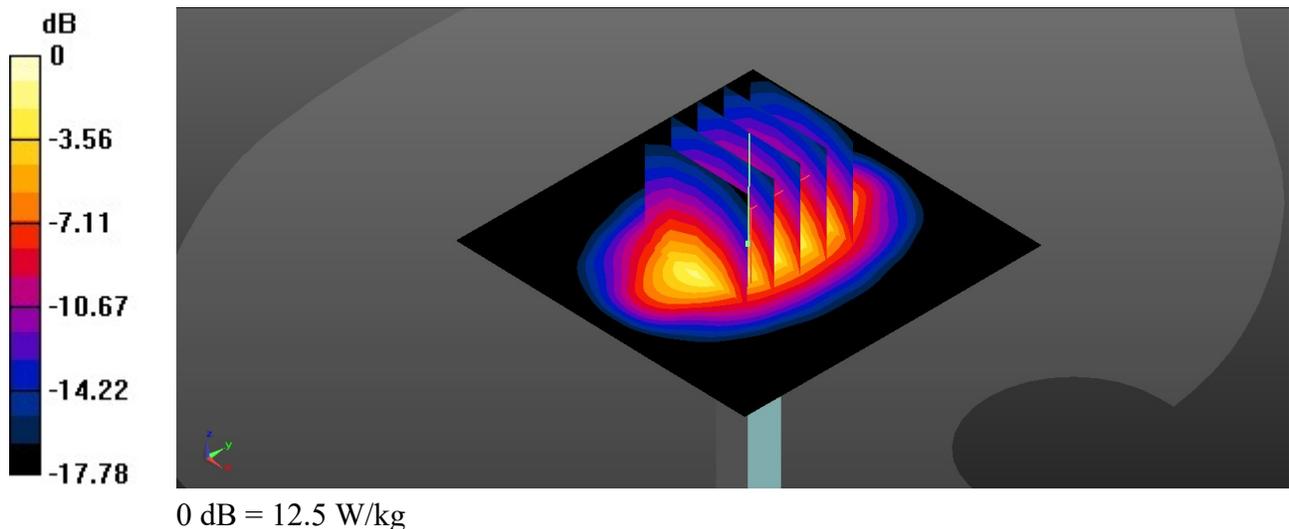
Ambient Temperature : 23.6 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(9.09, 9.09, 9.09); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.5 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 96.42 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 14.9 W/kg
SAR(1 g) = 10.20 W/kg; SAR(10 g) = 4.76 W/kg
Maximum value of SAR (measured) = 12.5 W/kg



System Check_Head_1900MHz

DUT: D1900V2-SN:5d182

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL_1900_220705 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.449$ S/m; $\epsilon_r = 39.097$; $\rho = 1000$ kg/m³

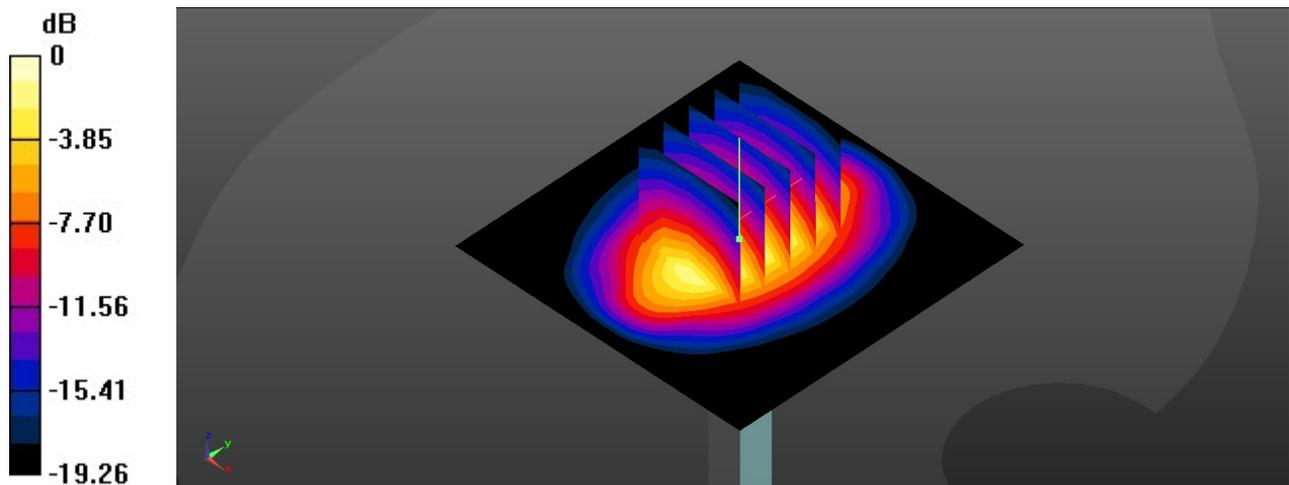
Ambient Temperature : 23.6 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(9.09, 9.09, 9.09); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 16.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 108.0 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 19.6 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.07 W/kg
Maximum value of SAR (measured) = 16.1 W/kg



0 dB = 16.1 W/kg

System Check_Head_2450MHz

DUT: D2450V2-SN:924

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL_2450_220627 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ S/m; $\epsilon_r = 39.753$; $\rho = 1000$ kg/m³

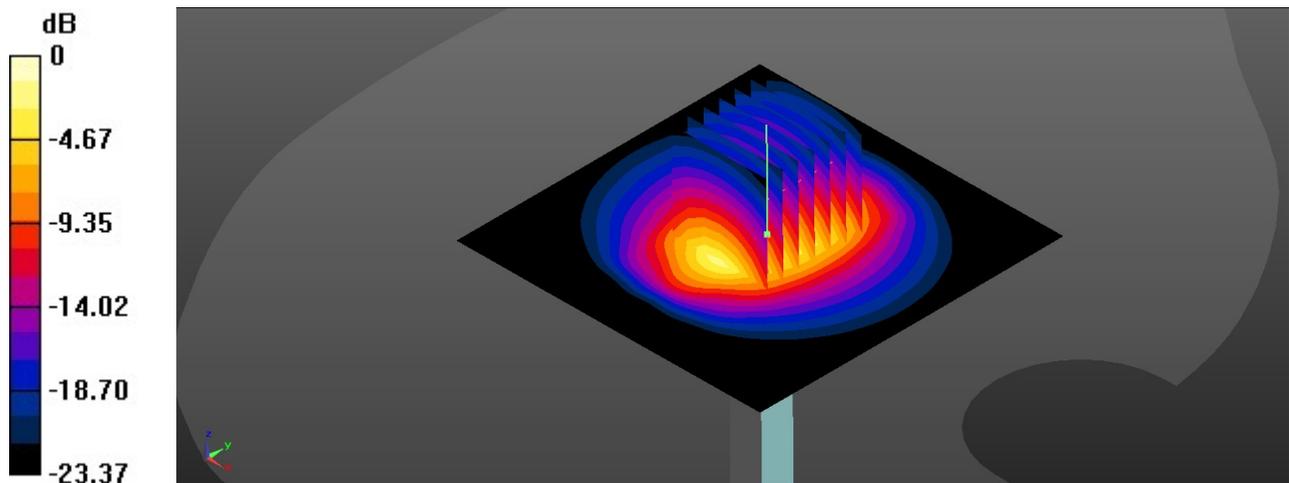
Ambient Temperature : 23.7 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(8.24, 8.24, 8.24); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.1 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.1 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 26.9 W/kg
SAR(1 g) = 12 W/kg; SAR(10 g) = 5.6 W/kg
Maximum value of SAR (measured) = 21.0 W/kg



0 dB = 21.0 W/kg

System Check_Head_2450MHz

DUT: D2450V2-SN:924

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL_2450_220707 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.809$ S/m; $\epsilon_r = 38.451$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7641; ConvF(8.24, 8.24, 8.24); Calibrated: 2022/4/11
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1437; Calibrated: 2021/10/26
- Phantom: Twin-SAM V8.0 (Left); Type: QD 000 P41 AA; Serial: 2035
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.0 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.1 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 26.7 W/kg
SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.68 W/kg
Maximum value of SAR (measured) = 20.9 W/kg

